

09/11/2004

10784312

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NEWS 9 SEP 01 INPADOC: New family current-awareness alert (SDI) available
NEWS 10 SEP 01 New pricing for the Save Answers for SciFinder Wizard within
STN Express with Discover!
NEWS 11 SEP 01 New display format, HITSTR, available in WPIDS/WPINDEX/WPIX
NEWS 12 SEP 27 STANDARDS will no longer be available on STN
NEWS 13 SEP 27 SWETSCAN will no longer be available on STN
NEWS 14 OCT 28 KOREAPAT now available on STN

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AND CURRENT DISCOVER FILE IS DATED 11 AUGUST 2004
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NEWS WWW CAS World Wide Web Site (general information)

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FILE 'HOME' ENTERED AT 09:20:44 ON 09 NOV 2004

=> FIL STNGUIDE

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COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.21

0.21

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=> file reg

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.06

0.27

FILE 'REGISTRY' ENTERED AT 09:21:08 ON 09 NOV 2004

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STRUCTURE FILE UPDATES: 7 NOV 2004 HIGHEST RN 776240-21-2

DICTIONARY FILE UPDATES: 7 NOV 2004 HIGHEST RN 776240-21-2

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

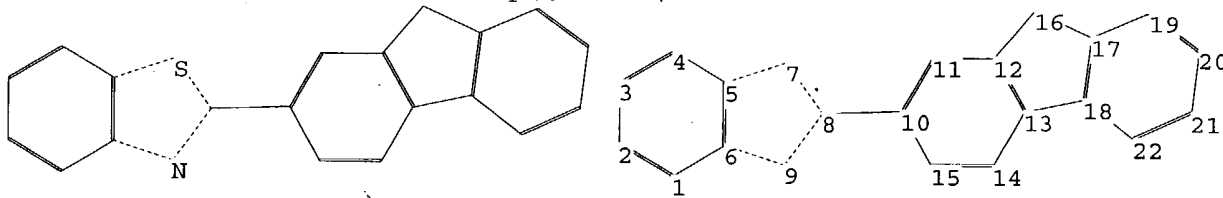
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10784312.str



ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

chain bonds :

8-10

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 8-9 10-11 10-15 11-12 12-16 12-13
13-18 13-14 14-15 16-17 17-18 17-19 18-22 19-20 20-21 21-22

09/11/2004

10784312

exact/norm bonds :

5-7 6-9 7-8 8-9 12-16 13-18 16-17

exact bonds :

8-10

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 10-11 10-15 11-12 12-13 13-14 14-15 17-18
17-19 18-22 19-20 20-21 21-22

Match level :

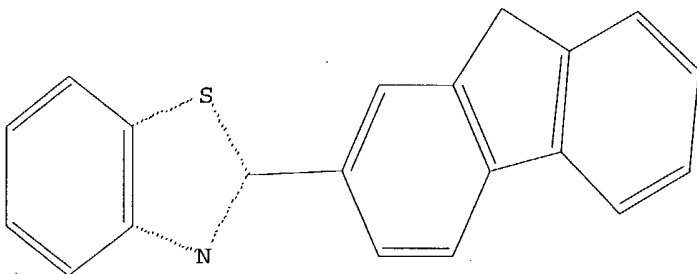
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:Atom 22:Atom

L1 STRUCTURE UPLOADED

=> d

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1 full

FULL SEARCH INITIATED 09:21:44 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 1197 TO ITERATE

100.0% PROCESSED 1197 ITERATIONS

54 ANSWERS

SEARCH TIME: 00.00.01

L2 54 SEA SSS FUL L1

=> file caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

155.42

155.69

FILE 'CAPLUS' ENTERED AT 09:21:50 ON 09 NOV 2004

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FILE COVERS 1907 - 9 Nov 2004 VOL 141 ISS 20
FILE LAST UPDATED: 8 Nov 2004 (20041108/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l2

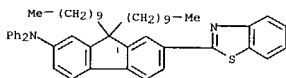
L3 49 L2

=> d ibib abs hitstr tot

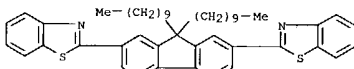
09/11/2004

10784312

L3 ANSWER 1 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2004:670129 CAPLUS
 DOCUMENT NUMBER: 141:303847
 TITLE: Two-photons and beyond: 2, 3 and 4 photon absorption in conjugated fluorenes
 AUTHOR(S): Belfield, Kevin D.; Hernandez, Florencio E.; Cohanoschi, Ion; Bondar, Mykhailo V.; Van Stryland, Eric W.
 CORPORATE SOURCE: Department of Chemistry and School of Optics: CREOL and FPCE, University of Central Florida, Orlando, FL, 32816-2366, USA
 SOURCE: Polymeric Materials: Science and Engineering (2004), 91, 346-347
 CODEN: PMSEEG; ISSN: 0743-0515
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal; (computer optical disk)
 LANGUAGE: English
 AB UV/Vis and fluorescence spectroscopic techniques were applied to study photophys. behavior of 3 conjugated fluorenes in hexane: 2-(2-benzothiazolyl)-7-diphenylamino-9,9-didecylfluorene, 2,7-bis(diphenylamino)-9,9-didecylfluorene, and 2,7-bis(2-benzothiazolyl)-9,9-didecylfluorene.
 IT 262607-32-9 745079-42-9
 RL: PRP (Properties)
 (multi-photon absorption in conjugated fluorenes)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



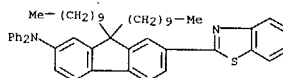
RN 745079-42-9 CAPLUS
 CN Benzothiazole, 2,2'-(9,9-didecyl-9H-fluorene-2,7-diyl)bis- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

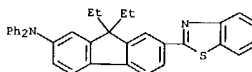
L3 ANSWER 2 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)

L3 ANSWER 2 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2004:620612 CAPLUS
 DOCUMENT NUMBER: 141:285327
 TITLE: Resonant enhancement of two-photon absorption in substituted fluorene molecules
 AUTHOR(S): Hales, Joel M.; Hagan, David J.; Van Stryland, Eric W.; Schafer, K. J.; Morales, A. R.; Belfield, K. D.; Pacher, P.; Kwon, O.; Zojer, E.; Bredas, J. L.
 CORPORATE SOURCE: School of Optics/CREOL, University of Central Florida, Orlando, FL, 32816-2700, USA
 SOURCE: Journal of Chemical Physics (2004), 121(7), 3152-3160
 CODEN: JCPSA6; ISSN: 0021-9606
 PUBLISHER: American Institute of Physics
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The degenerate and nondegenerate two-photon absorption (2PA) spectra for a sym. and an asym. fluorene derivative were exptl. measured in order to determine the effect of intermediate state resonance enhancement (ISRE) on the 2PA cross section δ . The ability to tune the individual photon energies in the nondegenerate 2PA (ND-2PA) process afforded a quant. study of the ISRE without modifying the chemical structure of the investigated chromophores. Both mols. exhibited resonant enhancement of the nonlinearity with the asym. compound showing as much as a twentyfold increase in δ . Furthermore, the possibility of achieving over a one order of magnitude enhancement of the nonlinearity reveals the potential benefits of utilizing ND-2PA for certain applications. To model ISRE, we have used correlated quantum-chemical methods together with the perturbative sum-over-states (SOS) expression. We find strong qual. and quant. correlation between the exptl. and theor. results. Finally, using a simplified three-level model for the SOS expression, we provide intuitive insight into the process of ISRE for ND-2PA.
 IT 262607-32-9
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
 (resonant enhancement of two-photon absorption in substituted fluorene mols.)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



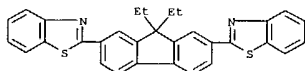
REFERENCE COUNT: 63 THERE ARE 63 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 3 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2004:577508 CAPLUS
 DOCUMENT NUMBER: 141:267426
 TITLE: Few-states models for three-photon absorption
 AUTHOR(S): Cronstrand, Peter; Norman, Patrick; Luo, Yi; Agren, Hans
 CORPORATE SOURCE: Theoretical Chemistry, SCFAB, Royal Institute of Technology, Stockholm, SE-106 91, Swed.
 SOURCE: Journal of Chemical Physics (2004), 121(5), 2020-2029
 CODEN: JCPSA6; ISSN: 0021-9606
 PUBLISHER: American Institute of Physics
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Few-states models are derived for the calcn. of three-photon absorption matrix elements. Together with earlier derived few-states models for two-photon absorption, the models are evaluated against results from response theory calcons. that provide the full sum-over-states values. It is demonstrated that not even for systems with charge-transfer character, where few-states models for two-photon absorption are in excellent agreement with response theory, do the models provide a quant. correct description for three-photon absorption. The convergence behavior, merits, and shortcomings of the models are elucidated in some detail.
 The role of various characteristics of the electronic structure, such as symmetry, charge transfer, and conjugation-important for the formation of a large three-photon cross section-is analyzed. As for two-photon absorption cross sections, it is essential to consider generalized few-states models also for three-photon absorption, i.e., to account for dipolar directions and laser beam polarization. Despite their poor quant. performance, it is argued that few-states models at times can be useful for interpretation purposes when applied to three-photon absorption.
 IT 222617-85-8
 RL: PRP (Properties)
 (few-states models for three-photon absorption in)
 RN 222617-85-8 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



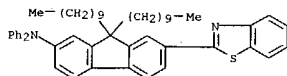
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2004:543643 CAPLUS
 DOCUMENT NUMBER: 141:313812
 TITLE: Synthesis, Characterization, and Optical Properties of
 of
 AUTHOR(S): New Two-Photon-Absorbing Fluorene Derivatives
 Belfield, Kevin D.; Morales, Alma R.; Kang, Bong-Soo;
 Hales, Joel M.; Hagan, David J.; Van Stryland, Eric
 W.; Chapela, Victor M.; Percino, Judith
 CORPORATE SOURCE: Department of Chemistry and College of Optics and
 Photonics: CREOL FPCE, University of Central Florida,
 Orlando, FL, 32816, USA
 SOURCE: Chemistry of Materials (2004), 16(23), 4634-4641
 CODEN: CMATEX; ISSN: 0897-4756
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The synthesis of a series of four new compds. containing fluorenyl
 chromophores is presented, along with the results of spectroscopic and
 photochem. studies aimed at understanding the two-photon absorption
 properties and energetics of their electronically excited states. The
 mol. structures of the compds. were systematically varied to allow
 comparison of mols. possessing high and low mol. symmetry, short and long
 alkyl chains, and a fluorenyl conjugated π -system. Solvent-dependent
 absorption and emission were investigated along with π -conjugation
 length. Preliminary measurements of two-photon absorption (2PA) using a
 two-photon fluorescence method indicate that these chromophores exhibit
 high two-photon absorptivity. A sym. mol. (3), possessing a relatively
 large π -conjugated system, flanked on either side by
 electron-withdrawing groups (benzothiazole), exhibited a peak 2PA cross
 section (8) of 6000 + 10-50 cm² s photon⁻¹ mol⁻¹ at 600 nm.
 Excitation anisotropy studies revealed the position of the S₀ + S₁
 and S₀ + S₂ electronic transitions. Consistent with quantum mech.
 selection rules, the two-photon allowed transition (S₀ + S₂) was
 dominant.
 IT 745079-41-8P 745079-42-9P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (synthesis, characterization, and optical spectra of
 two-photon-absorbing fluorene derivs.)
 RN 745079-41-8 CAPLUS
 CN Benzothiazole, 2,2'-(9,9-diethyl-9H-fluorene-2,7-diyl)bis- (9CI) (CA
 INDEX NAME)

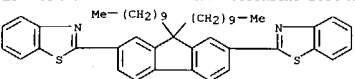


RN 745079-42-9 CAPLUS
 CN Benzothiazole, 2,2'-(9,9-didecyl-9H-fluorene-2,7-diyl)bis- (9CI) (CA
 INDEX NAME)

L3 ANSWER 5 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2004:442599 CAPLUS
 DOCUMENT NUMBER: 141:156786
 TITLE: Three-photon absorption enhancement in a symmetrical
 charge transfer fluorene derivative
 AUTHOR(S): Hernandez, Florencio E.; Belfield, Kevin D.;
 Cohanoschi, Ion
 CORPORATE SOURCE: Department of Chemistry and School of
 Optics/CREOL/FPCE, University of Central Florida,
 Orlando, FL, 32816-2366, USA
 SOURCE: Chemical Physics Letters (2004), 391(1-3), 22-26
 CODEN: CHPLBC; ISSN: 0009-2614
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The authors report the 3-photon absorption-induced upconversion
 fluorescence emission and the 3-photon absorption cross-section of 2
 fluorene derivs. with D- π -D (9,9-didecyl-2,7-bis-(N,N-
 diphenylamino)fluorene) and D- π -A ((7-benzothiazol-2-yl)-9,9-
 didecylfluorene-2-yl)diphenylamine structural motifs. The 3-photon
 absorption cross-section of the D- π -D analog (σ^3 = 82 +
 10⁻⁷⁸ cm⁶ s² photon⁻²) is 2.2 times greater than that of its D- π -A
 counterpart (σ^3 = 37 + 10⁻⁷⁸ cm⁶ s² photon⁻²), showing that
 sym. charge transfer enhances 3PA. The 3-photon-excitation of these 2
 compds. in hexane solution (9.8 + 10⁻³ M) was accomplished with a
 tunable OPG pumped by picosecond laser pulses. The 3-photon absorption
 coeffs. were measured using an open aperture Z-scan technique.
 IT 262607-32-9
 RL: PRP (Properties)
 (three-photon absorption enhancement in sym. charge transfer fluorene
 derivs. optical spectra)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluorene-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI)
 (CA INDEX NAME)



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L3 ANSWER 4 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)

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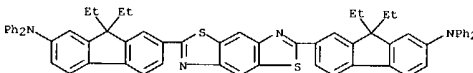
L3 ANSWER 6 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2004:360279 CAPLUS
 DOCUMENT NUMBER: 140:392334
 TITLE: Two-photon responsive chromophores containing
 electron
 INVENTOR(S): accepting core units
 Kannan, Ramamurthi; Tan, Loon-seng; Reinhardt, Bruce
 A.; Vaia, Richard A.
 PATENT ASSIGNEE(S): The United States of America as Represented by the
 Secretary of the Air Force, USA
 SOURCE: U.S., 6 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6730793	B1	20040504	US 2002-171566	20020613

 PRIORITY APPLN. INFO.:
 US 2002-171566
 US 2002-171566
 OTHER SOURCE(S): MARPAT 140:392334
 GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Chromophores are described by the general formula Q-(L-Z)x (x = 2 or 3;
 Q
 is selected from I, II, III, IV, V, and VI; L = VII; R = C1-20 alkyl
 group; and Z = VIII or IX). The chromophores may exhibit high two-photon
 absorptions. Thus, 2,5-Bis(7-carbazol-9-yl)-9,9-didecylfluorene-2-yl)-1,3-
 thiazolo(5,4d)1,3-thiazole was prepared and exhibited β = 2.8 cm²/GW at
 0.2 mol/L.
 IT 685531-21-9P 685531-22-0P
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (chromophores with high two-photon absorptions)
 RN 685531-21-9 CAPLUS
 CN 9H-Fluorene-2-amine, 7,7'-benzo[1,2-d:4,5-d']bisthiazole-2,6-diylbis[9,9-
 diethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

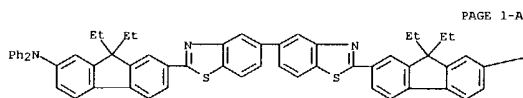


RN 685531-22-0 CAPLUS
 CN 9H-Fluorene-2-amine, 7,7'-[5,5'-bibenzothiazole]-2,2'-diylbis[9,9-diethyl-
 N,N-diphenyl- (9CI) (CA INDEX NAME)

09/11/2004

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L3 ANSWER 6 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)



PAGE 1-B

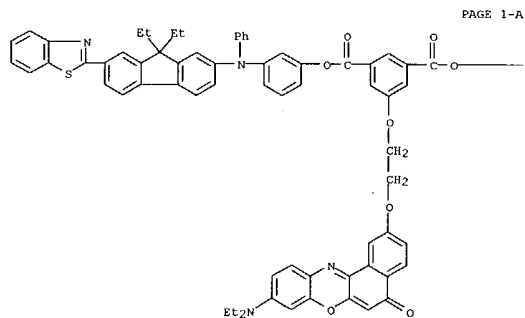
-NPh₂

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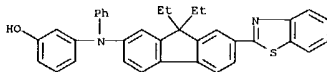
ACCESSION NUMBER: 2004:344262 CAPLUS
 DOCUMENT NUMBER: 141:72953
 TITLE: Fluorescence Resonance Energy Transfer in Novel
 Multiphoton Absorbing Dendritic Structures
 AUTHOR(S): Brousmiche, Darryl W.; Serin, Jason M.; Frechet, Jean
 M. J.; He, Guang S.; Lin, Tzu-Chau; Chung, Sung-Jae;
 Prasad, Paras N.; Kannan, Ramamurthi; Tan, Loon-Seng
 CORPORATE SOURCE: Department of Chemistry, University of California,
 Berkeley, CA, 94720-1460, USA
 SOURCE: Journal of Physical Chemistry B (2004), 108(25),
 8592-8600
 CODEN: JPCBFK; ISSN: 1520-6106
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 141:72953
 AB A series of small dendritic structures containing one of two efficient
 the multiphoton absorbing dyes at the periphery and a nile red derivative at
 the core have been synthesized. These mols. display efficient (>96%)
 fluorescence resonance energy transfer (FRET) from the periphery to the
 core on selective excitation of the two-photon absorbing chromophore by
 either UV (linear absorption) or high-intensity IR (nonlinear absorption).
 radiation. In addition, a significant increase in core emission is
 observed on
 excitation of the peripheral chromophores, compared to direct excitation
 of the core. This "antenna effect" essentially doubles between
 increasing
 dendrimer generations within a series. The combination of the ability of
 the peripheral chromophores to absorb high-intensity IR radiation,
 coupled
 with a very efficient energy transfer process and a significant increase
 in the fluorescence of the acceptor chromophore, makes these mols.
 potentially useful for a variety of applications, including optical power
 limiting and biomedical imaging.
 IT 710507-70-3P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (fluorescence resonance energy transfer in Nile Red-based multiphoton
 absorbing dendritic structures)
 RN 710507-70-3 CAPLUS
 CN 1,3-Benzenedicarboxylic acid, 5-[2-[[9-(diethylamino)-5-oxo-5H-
 benzo[a]phenoxazin-2-yl]oxy]ethoxy]-, bis[3-[[7-(2-benzothiazolyl)-9,9-
 diethyl-9H-fluoren-2-yl]phenylamino]phenyl] ester (9CI) (CA INDEX NAME)

L3 ANSWER 7 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)



PAGE 1-B

IT 710507-66-7
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (fluorescence resonance energy transfer in Nile Red-based multiphoton
 absorbing dendritic structures)
 RN 710507-66-7 CAPLUS
 CN Phenol,
 3-[[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]phenylamino]-
 (9CI) (CA INDEX NAME)



REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR
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L3 ANSWER 7 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)

L3 ANSWER 8 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN

ACCESSION NUMBER: 2004:300925 CAPLUS

DOCUMENT NUMBER: 141:30586

TITLE: Singlet Oxygen Generation via Two-Photon Excited FRET

AUTHOR(S): Dichtel, William R.; Serin, Jason M.; Edder, Carine; Frechet, Jean M. J.; Matuszewski, Michael; Tan, Loon-Seng; Ouhichiansky, Tynish Y.; Prasad, Paras N. Department of Chemistry, University of California, Berkeley, CA, 94720-1460, USA

CORPORATE SOURCE: Journal of the American Chemical Society (2004), 126(17), 5380-5381

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A modified porphyrin mol. is studied that has enhanced two-photon absorption (TPA) cross-section. The mol. consists of a dendritic array

of

eight donor chromophores capable of two-photon absorption covalently attached to a central porphyrin acceptor. Steady-state fluorescence measurements demonstrated that the donor chromophores transfer excited-state energy to the porphyrin with 97% efficiency. Two-photon excitation of the donor chromophores at 780 nm resulted in a dramatic increase in porphyrin fluorescence relative to a porphyrin model compound. Efficient singlet oxygen generation was observed from oxygen-saturated

solns. of this porphyrin compound under two-photon excitation conditions.

Electronic supplementary information (ESI) is available at <http://pubs.acs.org> and contains details and chemical characterization data of the porphyrin

compound

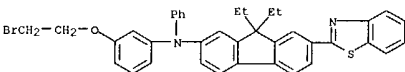
IT 700365-35-1

RL: PRP (Properties)

(model donor chromophore AF-343; singlet oxygen generation via two-photon excitation of sensitizer compound comprising porphyrin acceptor and dendritic array of eight donor chromophores)

RN 700365-35-1 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N-(3-(2-bromoethoxy)phenyl)-9,9-diethyl-N-phenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE

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L3 ANSWER 9 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN

ACCESSION NUMBER: 2004:234604 CAPLUS

DOCUMENT NUMBER: 141:38865

TITLE: Synthesis and characterization of thermally cross-linkable two-photon responsive chromophores

AUTHOR(S): Tan, Loon-Seng; Kannan, Ramamurthi; Dombroskie, Ann G.; Simko, Sharon R.; Houtz, Marlene; He, Guang S.; Lin, Tzu-Chau; Prasad, Paras N. Polymer Branch, AFRL/MLBP, Wright-Patterson Air Force Base, WPAFB, OH, 45433, USA

CORPORATE SOURCE: Polymer Preprints (American Chemical Society, Division

SOURCE: of Polymer Chemistry) (2004), 45(1), 901-902

CODEN: ACPPAV; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

AB Four new cross-linkable two-photon chromophores containing propargylether,

methylpropargylether, allylether and methylallylether endgroups were prepared via Pd-catalyzed amination of 3,3'-dimethoxydiphenylamine and

7-benzothiazol-2-yl-9,9-diethyl-2-bromofluorene, followed by demethylation

via pyridinium chloride and Williamson reaction with appropriate alkyl bromides in the presence of potassium carbonate in DMF. In comparison

with the unfunctionalized analog (AF-240, 9746 GM), their effective, nanosecond two-photon cross-sections ranging from 6560 to 10,400 GM (1

GM=10⁻⁵⁰ cm⁴ s / photon-mol.) were mostly unaffected by having allylether or propargylether functions at the 3,3'-positions of the diphenylamino

group. Thermal anal. results indicated that they could be thermally polymerized, and higher degrees of curing could be achieved in air than

under inert atmospheric The influence of thermal curing on their linear and

nonlinear properties is the subject of future studies.

IT 225113-41-7

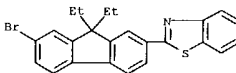
RL: RCT (Reactant); RACT (Reactant or reagent)

(in preparation and characterization of thermally cross-linkable

two-photon responsive chromophores)

RN 225113-41-7 CAPLUS

CN Benzothiazole, 2-(7-bromo-9,9-diethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



IT 222617-85-8P 701971-73-5P 701971-75-7P

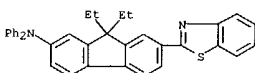
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

L3 ANSWER 9 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)

(in prepn. and characterization of thermally cross-linkable two-photon responsive chromophores)

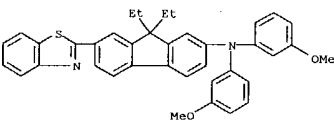
RN 222617-85-8 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



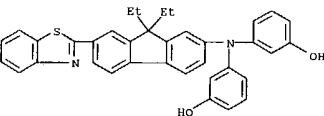
RN 701971-73-5 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-bis(3-methoxyphenyl)- (9CI) (CA INDEX NAME)



RN 701971-75-7 CAPLUS

CN Phenol, 3,3'-[[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]imino]bis- (9CI) (CA INDEX NAME)



IT 701971-78-0P 701971-81-5P 701971-84-8P

701971-87-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

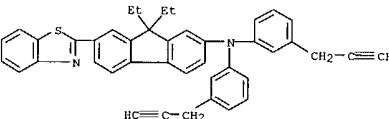
(monomer; preparation and characterization of thermally cross-linkable two-photon responsive chromophores)

RN 701971-78-0 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-bis[3-(2-propynyl)phenyl]- (9CI) (CA INDEX NAME)

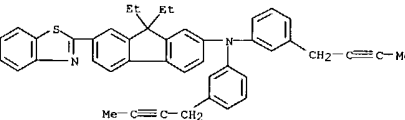


L3 ANSWER 9 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)



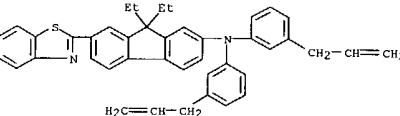
RN 701971-81-5 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N,N-bis[3-(2-butynyl)phenyl]-9,9-diethyl- (9CI) (CA INDEX NAME)



RN 701971-84-8 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-bis[3-(2-propenyl)phenyl]- (9CI) (CA INDEX NAME)



RN 701971-87-1 CAPLUS

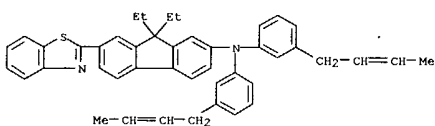
CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N,N-bis[3-(2-butenyl)phenyl]-9,9-diethyl- (9CI) (CA INDEX NAME)



09/11/2004

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L3 ANSWER 9 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)



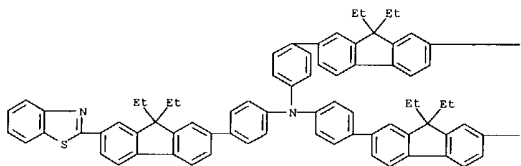
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L3 ANSWER 10 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

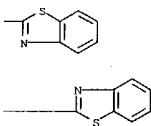
ACCESSION NUMBER: 2004:210510 CAPLUS
 DOCUMENT NUMBER: 140:414514
 TITLE: Degenerate two-photon-absorption spectral studies of highly two-photon active organic chromophores
 AUTHOR(S): He, Guang S.; Lin, Tzu-Chau; Dai, Jianming; Prasad, Paras N.; Kannan, Kamamurthi; Dombroskie, Ann G.; Vaia, Richard A.; Tan, Loon-Seng
 CORPORATE SOURCE: Photonics and Biophotonics, Institute for Lasers, State University of New York at Buffalo, Buffalo, NY, 14260-3000, USA
 SOURCE: 5275-5284
 CODEN: JCPSA6; ISSN: 0021-9606
 PUBLISHER: American Institute of Physics
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Degenerate two-photon absorption (TPA) spectral properties of five AFX chromophore solns. have been studied using a single and spectrally dispersed sub-picosecond white-light continuum beam. In a specially designed optical configuration, optical pathways inside the sample solution for different spectral components of the focused continuum beam were spatially separated from each other. Thus, the nondegenerate TPA processes coming from different spectral components can be eliminated, and the direct nonlinear absorption spectrum attributed to degenerate TPA processes can be readily obtained. Using this new technique, the complete TPA spectra for these five highly two-photon-active compds. (AF-380, AF-350, AF-295, AF-270, and AF-50) were obtained in the spectral range from 600 to 950 nm on an absolute scale of TPA cross section. The relationship between the mol. structures and their TPA spectral behaviors are discussed. In general the measured TPA spectra are not identical with the linear absorption spectra on the scale of absorbed photon(s) energy. Moreover, for some sample (such as AF-380), the TPA spectrum is totally different from the linear spectrum, which implies the difference of mol. transition pathways and selection rules for one- and two-photon excitation processes. At high excitation intensity levels (≥ 15 GW/cm²), the saturation behavior of TPA transition can be observed obviously in AF-350 and AF-380 solns. that exhibit much higher nonlinear absorptivity than the other chromophores investigated.
 IT 267667-11-8, AF 350 287493-07-6 364635-66-5 364635-72-3
 RL: PRP (Properties)
 (Degenerate two-photon-absorption spectral studies of highly two-photon active dialkylfluorene-based chromophores)
 RN 267667-11-8 CAPLUS
 CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N,N-bis[4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]phenyl]- (9CI) (CA INDEX NAME)

L3 ANSWER 10 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)

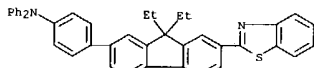
PAGE 1-A



PAGE 1-B

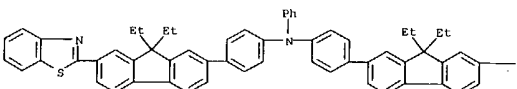


RN 287493-07-6 CAPLUS
 CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N,N-bis[4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]phenyl]- (9CI) (CA INDEX NAME)



RN 364635-66-5 CAPLUS
 CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N-[4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)

PAGE 1-A

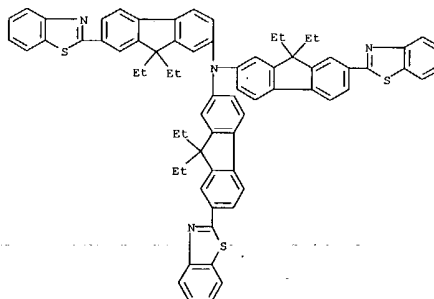


L3 ANSWER 10 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)

PAGE 1-B

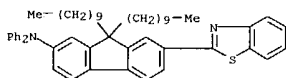


RN 364635-72-3 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N,N-bis[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-9,9-diethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 73 THERE ARE 73 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

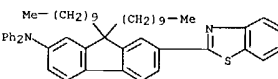
L3 ANSWER 11 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2004:165037 CAPLUS
 DOCUMENT NUMBER: 141:96518
 TITLE: Photochemical properties of (7-benzothiazol-2-yl-9,9-didecylfluoren-2-yl)diphenylamine under one- and two-photon excitation
 AUTHOR(S): Belfield, Kevin D.; Bondar, Mykhailo V.; Przhonska, Olga V.; Schafer, Katherine J.
 CORPORATE SOURCE: Department of Chemistry and School of Optics/CREOL, University of Central Florida, Orlando, FL, 32816-2366, USA
 SOURCE: Journal of Photochemistry and Photobiology, A: Chemistry (2004), 162(2-3), 569-574
 CODEN: JPPCEJ; ISSN: 1010-6030
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The photochem. properties of the fluorene derivative (7-benzothiazol-2-yl-9,9-didecylfluoren-2-yl)diphenylamine (I) in hexane and CH₂Cl₂ were studied under linear (one-photon) and nonlinear (two-photon) excitation. The quantum yield of the photochem. reaction, Φ , for I in hexane was in the range (3.5-5) $\times 10^{-5}$ for one-photon excitation (UVGL-25 and Xe-lamps) and was nearly the same under two-photon excitation (femtosecond laser with pulse duration 120 fs, average power .apprx.10 mW, repetition rate f=1 kHz). The values of Φ in CH₂Cl₂ were (2.5-4) $\times 10^{-5}$ for one-photon excitation and increased 50-80 times under two-photon excitation. This increase can be explained by an addnl. one-photon absorption process from the first electronically excited state, resulting in the observed enhancement in photochem. decomposition
 IT 262607-32-9
 RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent) (photochem. properties of (7-benzothiazol-2-yl-9,9-didecylfluoren-2-yl)diphenylamine under one- and two-photon excitation)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE
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L3 ANSWER 12 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2004:165020 CAPLUS
 DOCUMENT NUMBER: 141:130452
 TITLE: Two-photon absorption cross-sections of common photoinitiators
 AUTHOR(S): Schafer, Katherine J.; Hales, Joel M.; Balu, Mihaela; Belfield, Kevin D.; Van Stryland, Eric W.; Hagan, David J.
 CORPORATE SOURCE: Department of Chemistry, University of Central Florida, Orlando, FL, 32826, USA
 SOURCE: Journal of Photochemistry and Photobiology, A: Chemistry (2004), 162(2-3), 497-502
 CODEN: JPPCEJ; ISSN: 1010-6030
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Recent interests in and applications of two-photon absorption (2PA) induced photopoly. have afforded advanced opportunities to perform three-dimensionally resolved polymerization, resulting in intricate microfabrication and imaging. Many of the reported 2PA-induced polymers make use of com. available photoinitiators, and a key parameter to consider is the two-photon absorption cross-section (δ) of the initiator. To date, there has been no comprehensive investigation of two-photon absorptivity of com. photoinitiators, though a few studies presenting novel photoinitiators for two-photon polymerization have appeared. The authors report the 2PA properties of common, com. available photoinitiators typically utilized in conventional radiation curing science and technologies, and often used in 2PA-based polymers. Z-scan and white-light continuum (WLC) pump-probe techniques were utilized to obtain two-photon absorption cross-sections (δ). The results for most comds. were found to yield good agreement between the two methods. Most of the photoinitiators studied possess low δ , except Irgacure OXE01, indicating a need for the development of new photoinitiators with improved properties optimized for 2PA applications. A compound prepared in our labs. exhibits high 2PA and was useful as a two-photon free-radical photoinitiator.
 IT 262607-32-9, DPABz
 RL: PRP (Properties) (DPABz: two-photon absorption cross-sections of common photopoly. photoinitiators measured by Z-scan and white-light continuum pump-probe techniques)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

L3 ANSWER 13 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2004:165018 CAPLUS
 DOCUMENT NUMBER: 141:233070
 TITLE: Photostability of a series of two-photon absorbing fluorene derivatives
 AUTHOR(S): Belfield, Kevin D.; Bondar, Mykhailo V.; Przhonska, Olga V.; Schafer, Katherine J.
 CORPORATE SOURCE: Department of Chemistry and CREOL/School of Optics, University of Central Florida, Orlando, FL, 32816-2366, USA
 SOURCE: Journal of Photochemistry and Photobiology, A: Chemistry (2004), 162(2-3), 489-496
 CODEN: JPPCEJ; ISSN: 1010-6030
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The photochem. stability of a series of two-photon absorbing (TPA) fluorene derivs. was investigated in air- and N₂-saturated acetonitrile (ACN) at room temperature. The quantum yields of the photoreactions, Φ , were determined at various concns. of the fluorene derivs., oxygen concentration of the solvent, and irradiation wavelength. The absorption and fluorescence spectra of the photoproducts, corresponding to different excitation conditions, were analyzed. Photooxidn. and electron transfer processes are proposed as photobleaching mechanisms for the fluorene derivs. in ACN. The relatively low photochem. quantum yields (Φ .apprx.10⁻⁴) make the derivs. particularly promising for linear and nonlinear optical applications.
 IT 262607-32-9
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent) (photochem. properties of two-photon absorbing fluorene derivs. in acetonitrile solution as function of concentration and oxygen content and irradiation wavelength)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

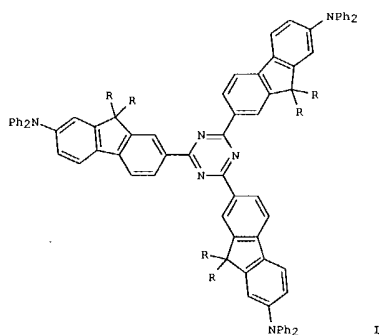


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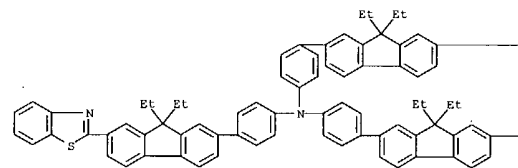
L3 ANSWER 14 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:935949 CAPLUS
 DOCUMENT NUMBER: 140:94017
 TITLE: Toward Highly Active Two-Photon Absorbing Liquids. Synthesis and Characterization of
 1,3,5-Triazine-Based
 Octupolar Molecules
 AUTHOR(S): Kannan, Ramamurthi; He, Guang S.; Lin, Tzu-Chau; Prasad, Paras N.; Vaia, Richard A.; Tan, Loon-Seng
 CORPORATE SOURCE: Systran Systems Corporation, Dayton, OH, 45432, USA
 SOURCE: Chemistry of Materials (2004), 16(1), 105-194
 CODEN: CMATEX; ISSN: 0897-4756
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 140:94017
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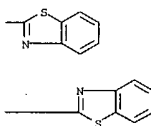
AB Novel two-photon absorbing chromophores I [R = Me(CH₂)₉, Me₂CHCH₂CH₂CH₂CHMeCH₂CH₂, H₂C=CHCH₂] are prepared containing 1,3,5-triazine π -electron deficient cores, dialkylfluorene aromatic bridges, and diphenylamino electron-donating end-groups. I [R = Me(CH₂)₉] possesses a high effective two-photon absorption cross-section (σ_2 = 39 500 + 10-50 cm⁴-sec/photon-mol., or 39 500 GM) as determined by nonlinear transmission in the nanosecond regime at 800 nm, while I [R = Me₂CHCH₂CH₂CH₂CHMeCH₂CH₂], a mixture of stereoisomers with the same chemical

L3 ANSWER 14 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)
 formula as I [R = Me(CH₂)₉], is a glassy material that becomes fluid (molasses-like) upon heating at 70-80 °C and has a noticeably smaller effective two-photon absorption cross-section (33 300 GM). I [R = H₂C=CHCH₂] has a lower effective two-photon absorption cross-section than I [R = Me(CH₂)₉, Me₂CHCH₂CH₂CH₂CHMeCH₂CH₂] (σ_2 = 27 800 GM) but is prep. as a precursor to two-photon absorbing liqs. The intrinsic two-photon absorption cross-sections of I are also detd. as a function of excitation wavelengths via a femtosecond white-light continuum generation and direct degenerate-TPA measurement technique. At the two-photon absorption peaks .apprx.779 nm, their effective two-photon absorption cross-section values are 216, 214, and 199 GM (\pm 15%) for I [R = Me(CH₂)₉, Me₂CHCH₂CH₂CH₂CHMeCH₂CH₂, H₂C=CHCH₂], resp.
 IT 267667-11-8 364635-72-3
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
 (preparation of octupolar mols. with 1,3,5-triazine cores, 9,9-dialkylfluorene linkers and diarylamine termini as potential two-photon absorbing chromophores and liqs. and comparison to previous chromophores)
 RN 267667-11-8 CAPLUS
 CN Benzenamine, 4-[17-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N,N-bis[4-(7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl)phenyl]- (9CI) (CA INDEX NAME)

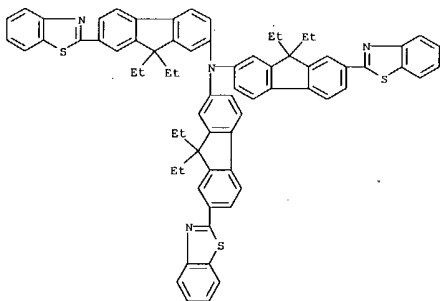
PAGE 1-A



PAGE 1-B



L3 ANSWER 14 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)
 RN 364635-72-3 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N,N-bis[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-9,9-diethyl- (9CI) (CA INDEX NAME)



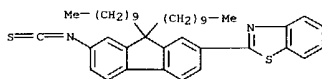
REFERENCE COUNT: 86 THERE ARE 86 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
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L3 ANSWER 15 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:891025 CAPLUS
 DOCUMENT NUMBER: 141:170155
 TITLE: Reactive two-photon fluorescent probes for biological imaging
 AUTHOR(S): Belfield, Kevin D.; Schafer, Katherine J.; Yao, Sheng; Hales, Joel M.; Hagan, David J.; Van Stryland, Eric W.
 CORPORATE SOURCE: Department of Chemistry, Univ. of Central Florida, Orlando, FL, 32816, USA
 SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2003), 5211(Nonlinear Optical Transmission and Multiphoton Processes in Organics), 91-95
 CODEN: PRISDG; ISSN: 0277-786X
 PUBLISHER: SPIE-The International Society for Optical Engineering
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Two-photon fluorescence microscopy is a prominent tool in biol. imaging anal. Many com. available fluorescent dyes currently being used have sufficed for multiphoton based imaging of biol. samples. While measured two-photon cross-sections (in Goppert Meyer, GM units) of some of the dyes are available, many exhibit relatively low two-photon cross-section values in the tunability range of Ti:sapphire lasers commonly used in multiphoton microscopy imaging. For example, Bodipy FL exhibits a maximum GM unit of 18 at 925 nm, compared to a range of 2-4 GM units from 775-875 nm. Furthermore, available fluorophores may be plagued with either low fluorescence quantum yield and/or the addnl. problem of rapid photobleaching upon exposure to the high peak power provided by the fs laser source. In order to address the demand for better performing dyes for two-photon based imaging, we have prepared a new series of reactive fluorophores tailored for multiphoton imaging. These fluorophores are based upon the fluorene ring system, known to exhibit high fluorescence quantum yields, typically > 0.7, and possess high photostability. They have been functionalized with various moieties to act, e.g., as efficient amine-reactive fluorescent probes for the covalent attachment onto amine-containing biomols. Single-photon spectral characteristics, as well as measured two-photon cross sections of a reactive fluorophore and its conjugate in solution, as well as spectral characterizations of a bovine serum albumin (BSA) conjugate are presented.
 IT 733045-02-8
 RL: ARU (Analytical role, unclassified); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)
 (reactive two-photon fluorescent probes for biol. and protein imaging)
 RN 733045-02-8 CAPLUS
 CN Benzo[thiazole, 2-(9,9-didecyl-7-isothiocyanato-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

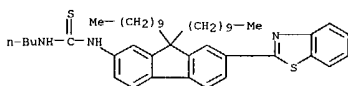
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L3 ANSWER 15 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)

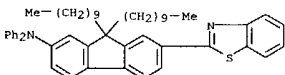


IT 733045-03-9P
 RL: ARU (Analytical role, unclassified); SPN (Synthetic preparation);
 ANST (Analytical study); PREP (Preparation)
 (reactive two-photon fluorescent probes for biol. and protein imaging)
 RN 733045-03-9 CAPLUS
 CN Thiourea, N-[7-(2-benzothiazolyl)-9,9-didecyl-9H-fluoren-2-yl]-N'-butyl-
 (9CI) (CA INDEX NAME)



REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR
 THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE
 FORMAT

L3 ANSWER 16 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR
 THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE
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L3 ANSWER 16 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:891017 CAPLUS
 DOCUMENT NUMBER: 141:196943
 TITLE: Nonlinear optical spectroscopic characterization of a
 series of fluorene derivatives
 AUTHOR(S): Hales, Joel M.; Schafer, Katherine J.; Morales, Alma
 M.; Belfield, Kevin D.; Hagan, David J.; Van
 Stryland,

CORPORATE SOURCE: Eric W.
 School of Optics/CREOL, Univ. of Central Florida,
 Orlando, FL, 32816, USA
 SOURCE: Proceedings of SPIE-The International Society for
 Optical Engineering (2003), 5211(Nonlinear Optical
 Transmission and Multiphoton Processes in Organics),
 21-30
 CODEN: PSISDG; ISSN: 0277-786X
 PUBLISHER: SPIE-The International Society for Optical
 Engineering
 DOCUMENT TYPE: Journal
 LANGUAGE: English

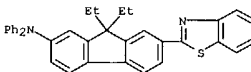
AB The authors have performed nonlinear spectroscopic measurements to study
 the chemical structure/nonlinear optical property relations for a set of
 alkyl fluorene derivs. The characterization method the authors used is a
 femtosecond white-light continuum (WLC) pump-probe spectrometer that can
 rapidly characterize an organic samples nondegenerate two-photon
 absorption
 (2PA) spectrum. The nature of these expts. requires sophisticated data
 anal. In particular, the relative group velocity mismatch between the
 pump and probe, which are at different frequencies, makes these pulses
 walk through each other within the thickness of the sample. For widely
 different frequencies, this can severely diminish the 2PA signal
 strength.
 However, given careful anal., the authors found good agreement with known
 semiconductor samples. Confidence in this method has allowed the authors
 to study the effects of solvent effect, electron-withdrawing character,
 conjugation length, and symmetry on the two-photon absorbing properties
 of
 these mols. The authors found an optimum solvent polarity as well as
 electron-withdrawing character which serves to maximize the strength of
 the 2PA in these materials. Different synthesis avenues provided the
 authors with two different methods of extending the conjugation length
 that increases the nonlinearity as well. Finally, studies of mols. with
 disparate symmetry have allowed the authors to identify the symmetry of
 the excited states. The authors present the 1st exptl. study of the
 intermediate state resonance enhancement of nondegenerate 2PA in organic
 mols. Using a simplified sum-over-states expression, the authors make
 comparisons between experiment and theory.

IT 262607-32-9
 RL: PRP (Properties)
 (nonlinear optical spectroscopic characterization of a series of
 fluorene derivs.)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI)
 (CA INDEX NAME)

L3 ANSWER 17 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

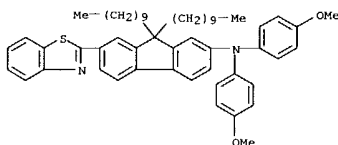
ACCESSION NUMBER: 2003:702370 CAPLUS
 DOCUMENT NUMBER: 140:41640
 TITLE: Influence of electron-acceptor strength on the
 resonant two-photon absorption cross sections of
 diphenylaminofluorene-based chromophores
 AUTHOR(S): Guo, Jing-Dong; Wang, Chuan-Kui; Luo, Yi; Agren, Hans
 CORPORATE SOURCE: Theoretical Chemistry, SCFAB, Royal Institute of
 Technology, Stockholm, S-10691, Swed.
 SOURCE: Physical Chemistry Chemical Physics (2003), 5(18),
 3869-3873
 CODEN: PPCPGQ; ISSN: 1463-9076
 PUBLISHER: Royal Society of Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Resonant two-photon absorption (TPA) cross sections of a series of
 diphenylaminofluorene-based chromophores with various electron acceptors
 are predicted using the RPA and using hybrid d. functional theory
 implemented for a two-state model. A comparison of the two methods
 indicates that the two-state model is adequate for describing the TPA
 cross sections of all asym. charge-transfer systems under investigation.
 It is demonstrated that the inclusion of electron correlation can
 drastically increase the absolute values of the TPA cross sections, but
 that
 it has negligible effects on the relative order of the TPA activity of
 the
 mols.
 IT 222617-85-8, AF-240
 RL: PRP (Properties)
 (influence of electron-acceptor strength on resonant two-photon
 absorption cross sections of diphenylaminofluorene-based chromophores)
 RN 222617-85-8 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-diphenyl- (9CI)
 (CA INDEX NAME)



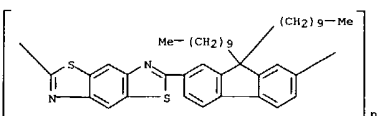
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR
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L3 ANSWER 18 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:381591 CAPLUS
 DOCUMENT NUMBER: 138:338848
 TITLE: Nondestructive multiphoton fluorescence imaging of polymeric materials
 AUTHOR(S): Belfield, Kevin D.; Schafer, Katherine J.; Van Stryland, Eric W.
 CORPORATE SOURCE: Dep. of Chem., Univ. of Central Florida, Orlando, FL, 32816, USA
 SOURCE: Polymeric Materials Science and Engineering (2001), 84, 1010-1011
 CODEN: PMSEGD; ISSN: 0743-0515
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The design of efficient multiphoton absorbing chromophores, their photophys. properties, and uses in three-dimensional, nondestructive multiphoton fluorescence imaging of polymeric materials, e.g., fibrin, synthetic polymers, are described. The method is illustrated with imaging of a fluorophore mixture with poly(Me methacrylate).
 IT 289892-09-7
 RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses) (chromophore imaging agent; fluorene-based fluorophores for nondestructive multiphoton fluorescence imaging of polymeric materials)
 RN 289892-09-7 CAPLUS
 CN 9H-Fluorene-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



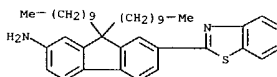
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
 FORMAT

L3 ANSWER 20 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:381184 CAPLUS
 DOCUMENT NUMBER: 138:354537
 TITLE: Luminescence and multiphoton absorption of a new class of bisbenzothiazole polymer
 AUTHOR(S): Belfield, Kevin D.; Morales, Alma; Yavuz, Ozlem; Stegeman, George I.; Chapela, Victor M.; Percino, Judith
 CORPORATE SOURCE: Department of Chemistry and School of Optics, University of Central Florida, Orlando, FL, 32816, USA
 SOURCE: Polymeric Materials Science and Engineering (2001), 84, 660-661
 CODEN: PMSEGD; ISSN: 0743-0515
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The ease of synthesis, high two-photon absorptivity, and fluorescence properties makes fluorenyl bisbenzothiazole polymer a good candidate for optical power limiting and two-photon fluorescence imaging. Thus, 2,7-dicyano-9,9-didecylfluorene (0.0014 mol, preparation given), 2,5-diamino-1,4-benzenedithiol dihydrochloride (0.0014 mol), and polyphosphoric acid (3.75 g) were stirred, flushed with N (g), heated to 45° under vacuum, stirred for 16 h, the temperature gradually raised to 60° for 4 h, and 100° for 2 h, resulting in the reaction mixture turning orange, cooled to room temperature and 1.83 g P2O5 was added, the solution was then slowly heated to 100° and stirred for 16 h (reddish-orange solution), followed by heating to 130° for another 16 h, then at 145° for 6 h, cooled in water, neutralized with NH4OH (20%) and washed with water in a Soxhlet extractor for 32 h to give polymer which was dried and again washed with hexane, yielding a yellow solid (0.49 g, yield 53%).
 IT 518357-48-7P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (luminescence and multiphoton absorption of fluorenyl bisbenzothiazole polymer)
 RN 518357-48-7 CAPLUS
 CN Poly[benzo[1,2-d:4,5-d']bis(benzothiazole-2,6-diyl)(9,9-didecyl-9H-fluorene-2,7-diyl)] (9CI) (CA INDEX NAME)



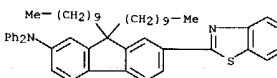
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
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L3 ANSWER 19 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:381432 CAPLUS
 DOCUMENT NUMBER: 138:338686
 TITLE: Maleic anhydride-modified polymers for two-photon upconverted fluorescence
 AUTHOR(S): Belfield, Kevin D.; Andrasik, Stephen; Schafer, Katherine J.; Yavuz, Ozlem; Hales, Joel M.; Van Stryland, Eric W.
 CORPORATE SOURCE: Dep. of Chem., Univ. of Central Florida, Orlando, FL, 32816, USA
 SOURCE: Polymeric Materials Science and Engineering (2001), 84, 732-733
 CODEN: PMSEGD; ISSN: 0743-0515
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Simultaneous two-photon absorption is a process in which the probability of a ground to excited state transition scales quadratically with incident intensity of the irradiation source. This nonlinear or quadratic dependence makes two-photon excitation particularly attractive for use in a number of emerging technologies, including two-photon fluorescence imaging, three-dimensional micro-fabrication, and optical power limiting. We wish to report the synthesis and photophys. characterization of polymers bearing chromophores that exhibit high two-photon absorptivity. Polymers derived from copolym. with maleic anhydride or through grafting of maleic anhydride were modified with primary amine-containing two-photon fluorophores, affording the corresponding imides. Photophys. properties including, linear absorption, excited state lifetime, single photon fluorescence, and two-photon upconverted fluorescence emission spectra are reported.
 IT 262607-30-7P, 7-(2-Benzothiazolyl)-9,9-didecyl-2-fluorenylamine
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (benzothiazolyl fluorenylamine-modified polymers for two-photon upconverted fluorescence)
 RN 262607-30-7 CAPLUS
 CN 9H-Fluorene-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
 FORMAT

L3 ANSWER 21 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:293006 CAPLUS
 DOCUMENT NUMBER: 139:36200
 TITLE: Chemical structure/nonlinear optical property relations for fluorenyl ring system derivatives
 AUTHOR(S): Hales, J.; Schafer, K. J.; Morales, A. M.; Belfield, K. D.; Hagan, D. J.; Van Stryland, E. W.
 CORPORATE SOURCE: School of Optics/CREOL, University of Central Florida, Orlando, FL, 32816-2700, USA
 SOURCE: Trends in Optics and Photonics (2002), 79(Nonlinear Optics), 369-371
 CODEN: TOPRES
 PUBLISHER: Optical Society of America
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB We present initial work involving chemical-structure/nonlinear-optical (NLO) property relations for a set of fluorene derivs. This is achievable using our femtosecond white-light continuum pump-probe nonlinear spectrometer which can rapidly characterize a sample's two-photon absorption spectrum.
 IT 262607-32-9
 RL: PRP (Properties) (chemical structure-nonlinear optical property relations for fluorenyl ring system derivs.)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluorene-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

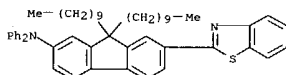


REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
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L3 ANSWER 22 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2002:924150 CAPLUS
 DOCUMENT NUMBER: 138:287182
 TITLE: Steady-State Spectroscopic and Fluorescence Lifetime Measurements of New Two-Photon Absorbing Fluorene Derivatives
 AUTHOR(S): Belfield, Kevin D.; Bondar, Mikhailo V.; Przhonska, Olga V.; Schafer, Katherine J.
 CORPORATE SOURCE: Department of Chemistry, University of Central Florida, Orlando, FL, USA
 SOURCE: Journal of Fluorescence (2002), 12(3/4), 449-454
 CODEN: JOFLEN; ISSN: 1053-0509
 PUBLISHER: Kluwer Academic/Plenum Publishers
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Steady-state excitation anisotropy, lifetimes, and time-resolved emission spectra of new 2-photon absorbing fluorene derivs. [(7-benzothiazol-2-yl-9,9-didecylfluorene-2-yl)diphenylamine, 9,9-didecyl-2,7-bis(N,N-diphenylamino)fluorene, and [4-[2-(7-diphenylamino-9,9-diethylfluorene-2-yl)-vinyl]phenyl]phosphoric acid di-Et ester] were measured in aprotic solvents at room temperature. Excitation anisotropy spectra in viscous silicon oil allowed the determination of the spectral position of three electronic transitions S0 S1, S0 S2, S0 S3 (Si, i = 1, 2, 3 are the singlet electronic states) and the angles (.simeq. 30°) between absorption S0 S1 and emission S1 S0 dipole moments for the first electronic transition. Solvate relaxation processes in the first excited state of the investigated fluorene mols. affect the lifetimes of these states, τ_1 , so that exptl. values of τ_1 do not correspond to those calculated by Strickler and Berg theory. The influence of the mol. concentration on the fluorescence quantum yields and τ_1 have been investigated.
 IT 262607-32-9
 RL: PRP (Properties)
 (steady-state spectroscopic and fluorescence lifetime measurements of new two-photon absorbing fluorene derivs.)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluorene-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



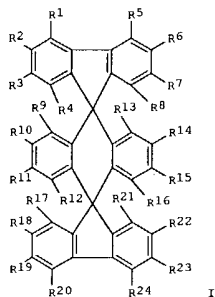
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 23 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2002:849756 CAPLUS
 DOCUMENT NUMBER: 137:360139
 TITLE: Double-spiro organic compounds and electroluminescent devices
 INVENTOR(S): Kim, Kong-Kyeum; Son, Se-Hwan; Yoon, Seok-Hee; Bae, Jae-Soon; Lee, Youn-Gu; Im, Sung-Gap; Kim, Ji-Eun; Lee, Jae-Chol
 PATENT ASSIGNEE(S): LG Chem, Ltd., S. Korea
 SOURCE: PCT Int. Appl., 117 pp.
 CODEN: PIKXKD
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

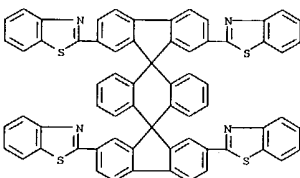
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002088274	A1	20021107	WO 2002-KR458	20020318
W: CN, JP				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
KR 2002083614	A	20021104	KR 2001-23038	20010427
KR 2002083615	A	20021104	KR 2001-23039	20010427
US 2004023060	A1	20040205	US 2002-99781	20020314
EP 1294823	A1	20030326	EP 2002-705589	20020318
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
JP 2004529937	T2	20040930	JP 2002-585559	20020318
US 2004170863	A1	20040902	US 2003-718083	20031119
PRIORITY APPLN. INFO.:				
			KR 2001-23038	A 20010427
			KR 2001-23039	A 20010427
			US 2002-99781	A3 20020314
			WO 2002-KR458	W 20020318

OTHER SOURCE(S): MARPAT 137:360139
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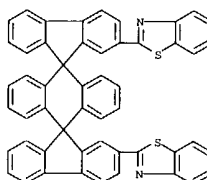
L3 ANSWER 23 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)



AB Double-spiro organic compds. are claimed which are described by the general formula I (R1-24 = independently selected substituents not all of which are H). Light-emitting, hole-transporting, and electron-transporting materials comprising the compds. are also described. Electroluminescent materials comprising the compds, including deposited films, methods for depositing the materials, and organic electroluminescent devices employing the materials, and method for fabricating the devices, are also described.
 IT 474688-44-3 474688-46-5
 RL: DEV (Device component use); USES (Uses)
 (double-spiro organic compds. and electroluminescent devices using them)
 RN 474688-44-3 CAPLUS
 CN Benzo[thiazole, 2,2',2'',2'''-dispiro[9H-fluorene-9,9'(10'H)-anthracene-10',9'']-[9H]fluorene]-2,2'',7,7'''-tetrayltetrakis- (9CI) (CA INDEX NAME)



L3 ANSWER 23 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)
 RN 474688-46-5 CAPLUS
 CN Benzo[thiazole, 2,2',2'',2'''-dispiro[9H-fluorene-9,9'(10'H)-anthracene-10',9'']-[9H]fluorene]-2,2'',7,7'''-diylbis- (9CI) (CA INDEX NAME)

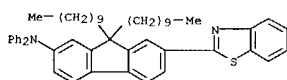


REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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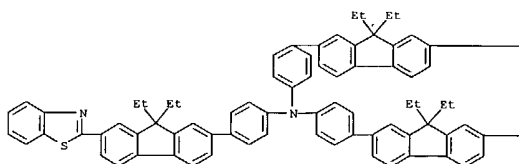
L3 ANSWER 24 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2002:673937 CAPLUS
 DOCUMENT NUMBER: 137:359662
 TITLE: Experiment and analysis of two-photon absorption spectroscopy using a white-light continuum probe
 AUTHOR(S): Negres, Raluca A.; Hales, Joel M.; Kobayakov, Andrey; Hagan, David J.; Van Stryland, Eric W.
 CORPORATE SOURCE: School of Optics/CREOL, University of Central Florida,
 Florida, Orlando, FL, 32816-2700, USA
 SOURCE: IEEE Journal of Quantum Electronics (2002), 38(9), 1205-1216
 CODEN: IEJQA7; ISSN: 0018-9197
 PUBLISHER: Institute of Electrical and Electronics Engineers
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The authors present an exptl. technique along with the method of data anal. to give nondegenerate 2-photon absorption (2PA) spectra. The authors use a femtosecond pump pulse and a white-light continuum (WLC) probe to rapidly generate the 2PA spectra of a variety of materials. To analyze data taken with this method, the spectral and temporal characteristics of the WLC must be known, along with the linear dispersion of the sample. This allows determination of the temporal walk-off of the pump and probe pulses as a function of frequency caused by group-velocity mismatch. Data correction can then be performed to obtain the nonlinear losses. The authors derive an anal. formula for the normalized nonlinear transmittance that is valid under quite general exptl. parameters. The authors verify this on ZnS and use it for the determination of 2PA spectra of some organic compds. in solution. The authors also compare some of the data on orgs. with 2-photon fluorescence data and find good agreement.
 IT 262607-32-9
 RL: PRP (Properties)
 (two-photon absorption spectroscopy using white-light continuum probe in relation to electrooptical Kerr effect)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI)
 (CA INDEX NAME)



REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
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L3 ANSWER 25 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2002:647374 CAPLUS
 DOCUMENT NUMBER: 138:106347
 TITLE: Synthesis of C60-diphenylaminofluorene dyad with large
 2PA cross-sections and efficient intramolecular two-photon energy transfer
 AUTHOR(S): Chiang, Long Y.; Padmawar, Prashant A.; Canteenwala, Talzoon; Tan, Loon-Seng; He, Guang S.; Kannan, Ramamurthi; Vaia, Richard; Lin, Tzu-Chau; Zheng, Qingdong; Prasad, Paras N.
 CORPORATE SOURCE: Institute of Nanoscience and Engineering, Department of Chemistry, University of Massachusetts Lowell, Lowell, MA, 01854, USA
 SOURCE: Chemical Communications (Cambridge, United Kingdom) (2002), (17), 1854-1855
 CODEN: CHCOFS; ISSN: 1359-7345
 PUBLISHER: Royal Society of Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 138:106347
 AB The first, highly two-photon active C60 derivative comprised of a A-sp3-D conjugate structure was synthesized showing effective two-photon absorption cross-sections ($\sigma_2' = 196 + 10^{-48} \text{ cm}^4 \text{ sec}^{-1} \text{ mol}^{-1}$) in the nanosecond regime among the best values for diphenylaminofluorene-based AFX chromophores.
 IT 267667-11-8, AF 350 487017-31-2, AF 284
 RL: PRP (Properties)
 (2PA cross-section; synthesis of C60-diphenylaminofluorene dyad with large 2PA cross-sections and efficient intramol. two-photon energy transfer)
 RN 267667-11-8 CAPLUS
 CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N,N-bis[4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]phenyl]- (9CI)
 (CA INDEX NAME)

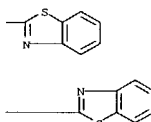
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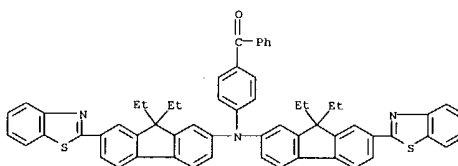
L3 ANSWER 24 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)

L3 ANSWER 25 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)

PAGE 1-B



RN 487017-31-2 CAPLUS
 CN Methanone, [4-bis[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]amino]phenylphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
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10784312

L3 ANSWER 26 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2002:626738 CAPLUS
 DOCUMENT NUMBER: 137:391001
 TITLE: Two-photon induced modulation of optical properties
 in

AUTHOR(S): Belfield, Kevin D.; Liu, Yong; Schafer, Katherine J.;
 Hernandez, Florencio E.
 CORPORATE SOURCE: Department of Chemistry and School of Optics/CREOL,
 University of Central Florida, Orlando, FL,
 32816-2366, USA
 SOURCE: Polymer Preprints (American Chemical Society,
 Division

of Polymer Chemistry) (2002), 43(2), 503-504
 CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer
 Chemistry

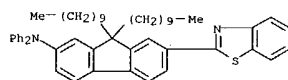
DOCUMENT TYPE: Journal; (computer optical disk)
 LANGUAGE: English

AB The modulation of optical properties via photoacid generation (and
 subsequent protonation of a two-photon absorbing dye) and photochromism
 of

a fulgide derivative is reported. The kinetic rate constant for the
 two-photon
 induced isomerization reaction of a fulgide was measured at two different
 intensities (two different powers), showing a quadratic dependence with
 respect to the pump intensity. The modulation of optical absorption and
 fluorescence properties were exploited in a polymeric medium where image
 formation via photoinduced fluorescence changes containing a two-photon
 absorbing fluorescent dye was demonstrated. Two-channel, two-photon
 fluorescence imaging provided both "pos." and "neg." image readout
 capability.

IT 421546-27-2
 RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical,
 engineering or chemical process); PRP (Properties); FORM (Formation,
 nonpreparative); PROC (Process)
 (two-photon induced modulation of optical properties in polymers for
 photonic applications)

RN 421546-27-2 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl-,
 conjugate monoacid (9CI) (CA INDEX NAME)



IT 262607-32-9

L3 ANSWER 27 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2002:72146 CAPLUS
 DOCUMENT NUMBER: 137:270333
 TITLE: A New Photosensitive Polymeric Material for WORM
 Optical Data Storage Using Multichannel Two-Photon
 Fluorescence Readout

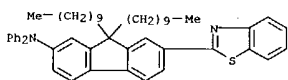
AUTHOR(S): Belfield, Kevin D.; Schafer, Katherine J.
 CORPORATE SOURCE: Department of Chemistry and School of Optics/CREOL,
 University of Central Florida, Orlando, FL,
 32816-2366, USA

SOURCE: Chemistry of Materials (2002), 14(9), 3656-3662
 CODEN: CMATEX; ISSN: 0897-4756
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Image formation is reported via photoinduced fluorescence changes in a
 polymeric medium with nondestructive two-photon fluorescence readout of a
 multilayer structure. A two-photon absorbing fluorescent dye possessing
 functional groups with differential basicity, (7-benzothiazolyl-9,9-
 didecyl-2,2-(N,N-diphenylamino)fluorene) (1), underwent protonation in
 the
 presence of a photoinduced acid generator upon exposure to a broadband UV
 light source or femtosecond near-IR laser irradiation. Solution studies
 demonstrated formation of monoprotonated and diprotonated species upon
 irradiation, each resulting in distinctly different absorption and
 fluorescence properties. The fluorescence of the original, neutral
 fluorophore was reduced upon monoprotonation, leading to a concomitant
 increase in fluorescence at longer wavelengths due to the monoprotonated
 form. Expts. in polymer films demonstrate the changes in fluorescence
 properties of the fluorophores can be employed for a write-once read-many
 (WORM) data storage medium with a two-photon fluorescence readout.
 Two-channel, two-photon fluorescence imaging provided both "pos." and
 "neg." image readout capability.

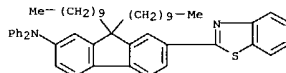
IT 421546-27-2 421546-28-3
 RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical,
 engineering or chemical process); PRP (Properties); FORM (Formation,
 nonpreparative); PROC (Process)
 (photosensitive polymeric material for optical data storage using
 multichannel two-photon fluorescence readout)

RN 421546-27-2 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl-,
 conjugate monoacid (9CI) (CA INDEX NAME)



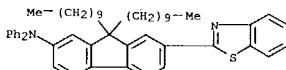
RN 421546-28-3 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl-,
 conjugate diacid (9CI) (CA INDEX NAME)

L3 ANSWER 26 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PRP (Properties); PROC (Process)
 (two-photon induced modulation of optical properties in polymers for
 photonic applications)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI)
 (CA INDEX NAME)

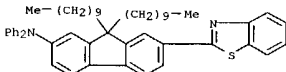


REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS
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L3 ANSWER 27 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)



IT 262607-32-9
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PRP (Properties); PROC (Process)
 (photosensitive polymeric material for optical data storage using
 multichannel two-photon fluorescence readout)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI)
 (CA INDEX NAME)



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR
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 RECORD. ALL CITATIONS AVAILABLE IN THE RE
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09/11/2004

10784312

L3 ANSWER 28 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN

ACCESSION NUMBER: 2002:542661 CAPLUS

DOCUMENT NUMBER: 137:360216

TITLE: Photophysical characterization of 2,9-bis(7-benzothiazole-9,9'-didecylfluoren-2-yl)perylene diimide: a new standard for steady-state fluorescence anisotropy

AUTHOR(S): Belfield, Kevin D.; Bondar, Mikhailo V.; Przhonska, Olga V.; Schafer, Katherine J.
CORPORATE SOURCE: Department of Chemistry and CREOL, University of Central Florida, School of Optics, Orlando, FL, 32816-2366, USASOURCE: Journal of Photochemistry and Photobiology, A: Chemistry (2002), 151(1-3), 7-11
CODEN: JPPCEJ; ISSN: 1010-6030
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal

LANGUAGE: English

AB The absorption, fluorescence excitation and emission spectra have been obtained in solution for 2,9-bis(7-benzothiazole-9,9'-didecylfluoren-2-yl)perylene diimide. Efficient resonance energy transfer from the fluorenyl group to the perylene ring center was observed. Interestingly, fluorescence emission was detected from the second excited electronic state of the perylene ring system. Fluorescence excitation anisotropy spectra obtained at room temperature exhibited a parallel orientation of

the main absorption and emission band transition moments for the perylene-based dye in CH₂Cl₂. The value of excitation fluorescence anisotropy for the perylene dye in solution approached the theor.maximum limit ($r=0.4$), and indicated that the rotational correlation time exceeded the lifetime of the first excited state. These results provide the basis for using this unique compound as an anisotropy reference

standard

IT 280760-22-1

RL: PRP (Properties)

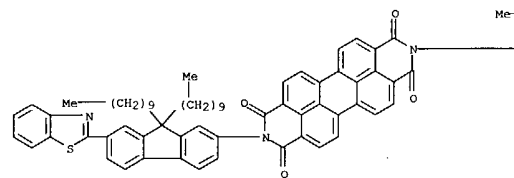
(photophys. characterization of perylene diimide derivative in relation to fluorescence anisotropy)

RN 280760-22-1 CAPLUS

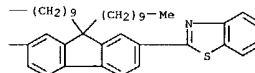
CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis(7-(2-benzothiazolyl)-9,9-didecyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

L3 ANSWER 28 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)

PAGE 1-A



PAGE 1-B



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS

FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L3 ANSWER 29 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN

ACCESSION NUMBER: 2002:372749 CAPLUS

DOCUMENT NUMBER: 137:176417

TITLE: Spectral properties of several fluorene derivatives with potential as two-photon fluorescent dyes

AUTHOR(S): Belfield, K. D.; Bondar, M. V.; Przhonska, O. V.; Schafer, K. J.; Mourad, W.
CORPORATE SOURCE: Department of Chemistry and CREOL/School of Optics, University of Central Florida, Orlando, FL, 32816-2366, USASOURCE: Journal of Luminescence (2002), 97(2), 141-146
CODEN: JLMAB8; ISSN: 0022-2313
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal

LANGUAGE: English

AB Investigations of the absorption, steady-state fluorescence, excitation and excitation anisotropy properties of several fluorene derivs., (7-benzothiazol-2-yl)-9,9-didecylfluoren-2-yl-diphenylamine, 9,9-didecyl-2,7-bis-(N,N-diphenylamino)fluorene and (4-[2-(7-diphenylamino)-9,9-diethylfluoren-2-yl]vinyl)phenyl)phosphoric acid di-Et ester, in

liquid solns. have been conducted. Spectral characteristics of these compds., including fluorescence quantum yields, were measured in acetonitrile, methylene chloride, THF and hexane at room temperature. Excitation

anisotropy spectra provided a means to determine the nature of the short wavelength absorption bands as an electronic transition into a higher excited

singlet state. It was found that excitation spectra in the short wavelength region do not correspond to the absorption bands that are correlated with the wavelength dependence of the fluorescence quantum yields. Major reasons of such spectral behavior are discussed.

IT 262607-32-9

PYP RL: PEP (Physical, engineering or chemical process); PRP (Properties);

(Physical process); TEM (Technical or engineered material use); PROC

(Process); USES (Uses)

(UV-visible absorption, fluorescence, excitation anisotropy and

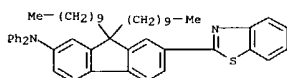
excitation spectra of fluorene derivs. with potential as two-photon

fluorescent dyes in solvents of varying polarity)

RN 262607-32-9 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI)

(CA INDEX NAME)



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS

FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L3 ANSWER 30 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN

ACCESSION NUMBER: 2002:229713 CAPLUS

DOCUMENT NUMBER: 136:377354

TITLE: Modulation of optical properties in new photosensitive

AUTHOR(S): Belfield, Kevin D.; Schafer, Katherine J.
CORPORATE SOURCE: Dep. Chem. Sch. Optics/CREOL, Univ. Central Florida, Orlando, FL, 32816-2366, USASOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2002), 43(1), 161-162
CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer

Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

AB The results of the photoinduced protonation of fluorene dye in liquid

solution

and polymer thin films, and the subsequent 3-dimensional imaging of multilayer polymer films via 2-photon fluorescence imaging, resulting in

a write-once, read-many (WORM) optical data storage system, are presented. All solution studies were conducted in CH₂Cl₂. A 2-photon absorbing fluorescent dye possessing differentially basic functional groups underwent protonation in the presence of a photoinduced acid generator. Solution studies showed formation of discrete species upon irradiation,

each leading to distinctly different spectroscopic properties. The modulation of optical absorption and fluorescence properties were exploited in a polymeric medium where image formation via photoinduced fluorescence changes containing a 2-photon absorbing fluorescent dye was shown. Two-channel, 2-photon fluorescence imaging provided both pos. and neg. image readout capability. The signal readout established the possibility for a binary optical data storage medium, where the intensities can be designated as a 0 and 1.

IT 262607-32-9

PYP RL: PEP (Physical, engineering or chemical process); PYP (Physical

process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

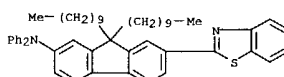
(modulation of optical properties in new 3-D optical data storage

media of photosensitive polymers)

RN 262607-32-9 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI)

(CA INDEX NAME)



IT 421546-27-2 421546-28-3

PYP RL: PEP (Physical, engineering or chemical process); PYP (Physical

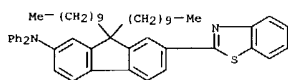
process); TEM (Technical or engineered material use); PROC (Process);

USES

(Uses)

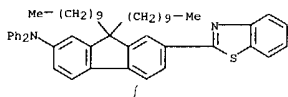
(modulation of optical properties in new 3-D optical data storage

L3 ANSWER 30 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)
 of photosensitive polymers)
 RN 421546-27-2 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl-,
 conjugate monoacid (9CI) (CA INDEX NAME)



● H⁺

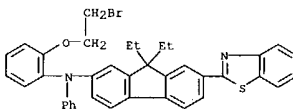
RN 421546-28-3 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl-,
 conjugate diacid (9CI) (CA INDEX NAME)



● 2 H⁺

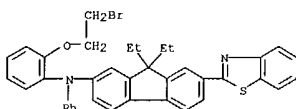
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR
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L3 ANSWER 31 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2002:229669 CAPLUS
 DOCUMENT NUMBER: 137:20727
 TITLE: Synthesis and optical characterization of
 1H-pyrazole-based 6F-benzoxazole polymers
 incorporating a two-photon absorption chromophore
 AUTHOR(S): Dang, T. D.; Matuszewski, M. J.; Dalton, M. J.;
 Kannan, R.; Franklin, J. E.; Durstock, M. F.; Tan, L.
 S.; Arnold, F. E.
 CORPORATE SOURCE: Polymer Branch, AFRL/MLBP, Wright-Patterson Air Force
 Base, Dayton, OH, 45433, USA
 SOURCE: Polymer Preprints (American Chemical Society,
 Division of Polymer Chemistry) (2002), 43(1), 102-103
 CODEN: ACPPAY; ISSN: 0032-3934
 PUBLISHER: American Chemical Society, Division of Polymer
 Chemistry
 DOCUMENT TYPE: Journal; (computer optical disk)
 LANGUAGE: English
 AB A homopolymer and a copolymer of 1H-pyrazole-based 6F-benzoxazole
 incorporating a diphenylaminofluorene-based chromophore with high
 two-photon absorption cross-section was synthesized via a post-polymer
 deprotonation-alkylation step. Thermal characterization of the
 polymer-bound chromophore indicated a substantial lowering of the polymer
 T_g due to the side-chain chromophore structural unit on the polymer
 backbone. The electronic absorption of the polymer, polymer-bound
 chromophore, and the pristine chromophore in THF solution and in the
 solid state was studied. The UV absorption stability of the chromophore and
 the polymer-bound chromophore films in nitrogen and in air was also studied.
 IT 433971-77-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (chromophore, AF-343; preparation and UV absorption stability of
 1H-pyrazole-hexafluorobenzoxazole functionalized with two-photon
 absorption diphenylaminofluorene chromophore)
 RN 433971-77-8 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N-[2-(2-bromoethoxy)phenyl]-9,9-
 diethyl-N-phenyl- (9CI) (CA INDEX NAME)

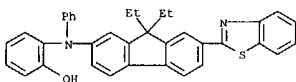


IT 433971-77-8DP, reaction products with pyrazole-
 hexafluorobenzoxazole polymers
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (chromophore-functionalized; preparation and UV absorption stability
 of

L3 ANSWER 31 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)
 1H-pyrazole-hexafluorobenzoxazole functionalized with two-photon
 absorption diphenylaminofluorene chromophore)
 RN 433971-77-8 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N-[2-(2-bromoethoxy)phenyl]-9,9-
 diethyl-N-phenyl- (9CI) (CA INDEX NAME)

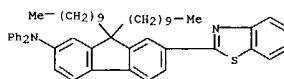


IT 433971-76-7
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation and UV absorption stability of 1H-pyrazole-
 hexafluorobenzoxazole functionalized with two-photon absorption
 diphenylaminofluorene chromophore)
 RN 433971-76-7 CAPLUS
 CN Phenol,
 2-[1-(7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl)phenylamino]-
 (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE
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L3 ANSWER 32 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2002:20504 CAPLUS
 DOCUMENT NUMBER: 137:85870
 TITLE: Three-dimensional two-photon imaging in polymeric
 materials
 AUTHOR(S): Belfield, Kevin D.; Schafer, Katherine J.; Andrasik,
 Stephen; Yavuz, Ozlem; Van Stryland, Eric W.; Hagan,
 David J.; Hales, Joel M.
 CORPORATE SOURCE: Department of Chemistry, University of Central
 Florida, Orlando, FL, 32816-2366, USA
 SOURCE: Proceedings of SPIE-The International Society for
 Optical Engineering (2002), 4459(Photorefractive
 Fiber
 and Crystal Devices: Materials, Optical Properties,
 and Applications VII, and Optical Data Storage),
 281-289
 CODEN: PSISDG; ISSN: 0277-786X
 PUBLISHER: SPIE-The International Society for Optical
 Engineering
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The authors report image formation via single and two-photon photoinduced
 fluorescence changes in a polymeric medium with two-photon fluorescence
 read-out of multilayer structures. Photoinduced acid generation in the
 presence of a two-photon fluorescent dye possessing strongly basic
 functional groups 7-benzothiazolyl-9,9-didecyl-2,2-(N,N-
 diphenylamino)fluorene underwent protonation upon exposure with UV or
 near-IR (740 nm fs pulses). Solution studies demonstrate formation of
 monoprotonated and diprotonated species upon irradiation, each resulting
 in distinctly different absorption and fluorescence properties. The
 fluorescence of the original, neutral, fluorophore is quenched upon
 monoprotonation with a concomitant increase in fluorescence at longer
 wavelengths due to the monoprotonated form. Hence, two channel
 two-photon fluorescence imaging provides 'pos.' or 'neg.' image readout capability.
 Results of solution and solid polymer thin films expts. are presented.
 IT 421546-27-2 421546-28-3
 RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical
 process); PRP (Properties); FORM (Formation, nonpreparative); PROC
 (Process)
 (protonation of two-photon absorbing fluorescent dye and its
 application for 3D imaging in polymeric film containing onium salt
 photoacid generator)
 RN 421546-27-2 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl-,
 conjugate monoacid (9CI) (CA INDEX NAME)



● H⁺

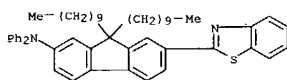
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L3 ANSWER 32 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)

RN 421546-28-3 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl-, conjugate diacid (9CI) (CA INDEX NAME)

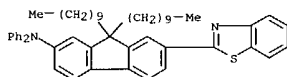
● 2 H⁺

IT 262607-32-9

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
 (protonation of two-photon absorbing fluorescent dye and its application for 3D imaging in polymeric film containing onium salt photoacid generator)

RN 262607-32-9 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 33 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN

ACCESSION NUMBER: 2001:923862 CAPLUS

DOCUMENT NUMBER: 136:54238

TITLE: Multiphoton photosensitization system

INVENTOR(S): Devoe, Robert J.

PATENT ASSIGNEE(S): 3M Innovative Properties Company, USA

SOURCE: PCT Int. Appl., 66 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001096409	A2	20011220	WO 2001-US19164	20010614
WO 2001096409	A3	20020404		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, FR, GB, GD, GE, GR, GU, HK, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TH, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TZ				
RW: GR, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1297021	A2	20030402	EP 2001-946384	20010614
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004503616	T2	20040205	JP 2002-510544	20010614
PRIORITY APPL. INFO.:				US 2000-211703P P 20000615
				WO 2001-US19164 W 20010614

OTHER SOURCE(S): MARPAT 136:54238

AB A method of multiphoton photosensitizing a photoreactive composition comprises

irradiating the composition with light sufficient to cause simultaneous absorption of at least two photons, thereby inducing at least one acid- or radical-initiated chemical reaction where the composition is exposed to the light.

The composition comprises: (a) at least one reactive species that is capable of undergoing such reaction; and (b) at least one multi-component, multiphoton photoinitiator system.

IT 219998-27-3 222617-85-8 262607-32-9

287493-05-4 287493-07-6 287493-08-7

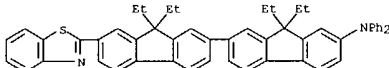
RL: CAT (Catalyst use); USES (Uses)

(multiphoton photosensitization system)

RN 219998-27-3 CAPLUS

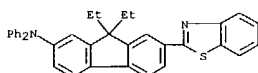
CN [2,2'-Bi-9H-fluoren]-7-amine, 7'-(2-benzothiazolyl)-9,9,9',9'-tetraethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

L3 ANSWER 33 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)



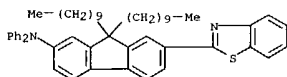
RN 222617-85-8 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



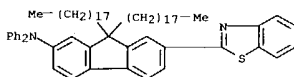
RN 262607-32-9 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



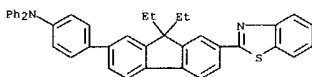
RN 287493-05-4 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-dioctadecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 287493-07-6 CAPLUS

CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

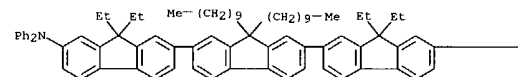


RN 287493-08-7 CAPLUS

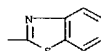
CN [2,2':7',2''-Ter-9H-fluoren]-7-amine, 7'-(2-benzothiazolyl)-9',9''-didecyl-9,9,9'',9''-tetraethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

L3 ANSWER 33 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)

PAGE 1-A



PAGE 1-B



09/11/2004

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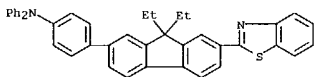
L3 ANSWER 34 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2001:744647 CAPLUS
 DOCUMENT NUMBER: 135:290148
 TITLE: Multi-armed chromophores with very large two-photon absorption cross-sections
 INVENTOR(S): Kannan, Ramamurthi; Reinhardt, Bruce A.; Tan, Loon-seng
 PATENT ASSIGNEE(S): United States of America as Represented by the Secretary of the Air Force, USA
 SOURCE: U.S., 10 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6300502	B1	20011009	US 2000-731549	20001208
PRIORITY APPLN. INFO.:			US 2000-731549	20001208

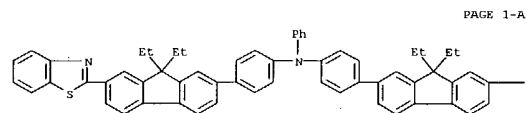
OTHER SOURCE(S): MARPAT 135:290148
 AB Provided are chromophores with very large two-photon absorption cross-sections. One group of these chromophores has the formula (TQ)nPhm wherein Q is a single bond or 1,4-phenylene, n is 1-3, m is 3-n, and T is 9,9-dialkyl-7-(2-benzothiazolyl)-2-fluorenyl, provided that when Q is a single bond, the value of n is 2 or 3. Another group of these chromophores has the formula (TQ)nGPhm wherein T is as defined above, Q is as defined above, n is 1-4, m is 4-n, and G is a 4-arm core unit. Yet another group of these chromophores has the formula: (TQ)nXPhm wherein T is as described previously, Q is as defined above, n is 1-6, m is 6-n, and X is a 6-arm core unit. The production of these laser dyes was exemplified.

IT 287493-07-6P
 RL: IMF (Industrial manufacture); PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (Reactant or reagent); USES (Uses)
 (dye; production of multi-armed dyes with very large two-photon absorption cross sections)

RN 287493-07-6 CAPLUS
 CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



L3 ANSWER 34 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)
 RN 364635-66-5 CAPLUS
 CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N-[4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)

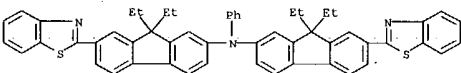


PAGE 1-A



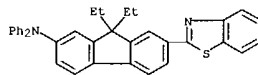
PAGE 1-B

RN 364635-67-6 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-9,9-diethyl-N-phenyl- (9CI) (CA INDEX NAME)

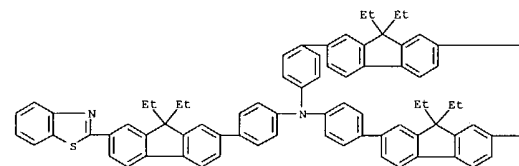


RN 364635-72-3 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N,N-bis[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-9,9-diethyl- (9CI) (CA INDEX NAME)

L3 ANSWER 34 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)
 IT 222617-85-8P 267667-11-8P 364635-66-5P
 364635-67-6P 364635-72-3P
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (dye; production of multi-armed dyes with very large two-photon absorption cross sections)
 RN 222617-85-8 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 267667-11-8 CAPLUS
 CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N,N-bis[4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]phenyl]- (9CI) (CA INDEX NAME)

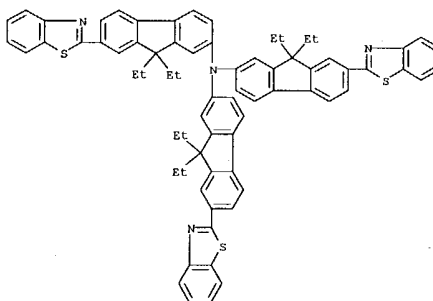


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PAGE 1-B

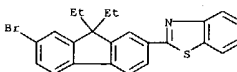
L3 ANSWER 34 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)



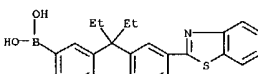
IT 225113-41-7P 287493-09-8P 340300-53-0P
 364635-65-4P 364635-69-8P 364635-70-1P
 364635-71-2P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);

RACT (Reactant or reagent)
 (intermediate; production of multi-armed dyes with very large two-photon absorption cross sections)

RN 225113-41-7 CAPLUS
 CN Benzothiazole, 2-(7-bromo-9,9-diethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



RN 287493-09-8 CAPLUS
 CN Boronic acid, [7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

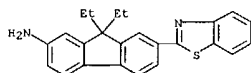


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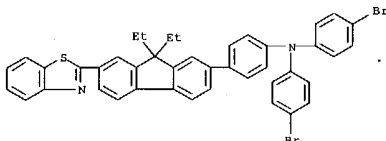
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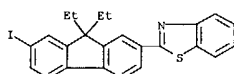
L3 ANSWER 34 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl- (9CI) (CA INDEX NAME)



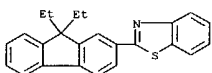
RN 364635-65-4 CAPLUS
 CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N,N-bis(4-bromophenyl)- (9CI) (CA INDEX NAME)



RN 364635-69-8 CAPLUS
 CN Benzothiazole, 2-(9,9-diethyl-7-iodo-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

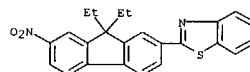


RN 364635-70-1 CAPLUS
 CN Benzothiazole, 2-(9,9-diethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



RN 364635-71-2 CAPLUS
 CN Benzothiazole, 2-(9,9-diethyl-7-nitro-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

L3 ANSWER 34 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
 FORMAT

L3 ANSWER 35 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2001:380926 CAPLUS
 DOCUMENT NUMBER: 134:374112
 TITLE: Three dimensional data storage device and method for reading
 INVENTOR(S): Prasad, Paras N.; Pudavar, Haridas E.
 PATENT ASSIGNEE(S): The Research Foundation of State University of New York, USA
 SOURCE: PCT Int. Appl., 61 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001037266	A1	20010525	WO 2000-US31666	20001117
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
PRIORITY APPLN. INFO.:			US 1999-165953P	P 19991117

AB A method for reading a three-dimensional data storage device includes: a) providing a data storage medium constituting a three-dimensional matrix and a plurality of dye mols. dispersed therein, wherein the dye mols. are capable of a fluorescence change induced by multiple-photon excitation;

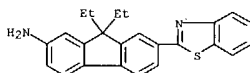
b) inducing a fluorescence change of the dye by multiple-photon excitation under conditions effective to write an information code in a selected portion of the medium; c) inducing one-photon excitation in the fluorescence-changed dye; d) detecting a fluorescence emission in the one-photon excited dye portion; and e) correlating the fluorescence with the dye mols. contained in the selected portion that are detectably altered effective to retrieve the information code. The process can be repeated to write multiple layers of information. The data storage methods and media are particularly useful for storing or archiving a series of three-dimensional images or information in the form of bar codes, medical bracelets, and identification tags. Methods for reading data stored in the data storage media using confocal microscopy are also disclosed.

IT 340300-53-0

RL: DEV (Device component use); USES (Uses)
 (multi-photon absorbing dye in three dimensional matrix of data storage material)

RN 340300-53-0 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl- (9CI) (CA INDEX NAME)

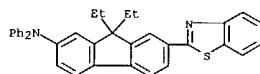
L3 ANSWER 35 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)



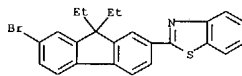
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
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L3 ANSWER 36 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2001:298453 CAPLUS
 DOCUMENT NUMBER: 135:93912
 TITLE: Diphenylaminofluorene-Based Two-Photon-Absorbing Chromophores with Various π -Electron Acceptors
 AUTHOR(S): Kannan, Ramamurthi; He, Guang S.; Yuan, Lixiang; Xu, Faming; Prasad, Paras M.; Dombroskie, Ann G.; Reinhardt, Bruce A.; Baur, Jeffery W.; Vaia, Richard A.; Tan, Loon-Seng
 CORPORATE SOURCE: Systran Systems Corporation, Dayton, OH, 45432, USA
 SOURCE: Chemistry of Materials (2001), 13(5), 1896-1904
 CODEN: CMATEX; ISSN: 0897-4756
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB A new series of linear, asym. (diphenylamino)fluorene-based chromophores (AFX) with various strong π -electron acceptors were synthesized and evaluated for two-photon absorptivity. These chromophores were studied to determine a suitable replacement for 2-(4-pyridinyl)vinyl, the π acceptor for our previously reported AFX series, which contains a photochem. and thermooxidatively unstable olefinic unit. In addition to the benzoyl group (AF-370), these π -electron acceptors include 2-benzothiazolyl (AF-240), 2-benzoxazolyl (AF-390), N-phenyl-2-benzimidazolyl (AF-386), and 3,4-diphenyl-1H-imidazol-2-yl (AF-385) moieties (five-membered heterocycles) and the 2-quinoxaliny (AF-260) group (six-membered heterocycle). From nanosecond nonlinear transmission measurements, these new chromophores have effective two-photon cross sections (σ_2') at 800 nm spanning from 3.87×10^{-48} cm⁴ s/(photon mol.) for AF-385 to 97.46×10^{-48} cm⁴ s/(photon mol.) for AF-240. Two of them, AF-240 and AF-370 [$\sigma_2' = 84.32 \times 10^{-48}$ cm⁴ s/(photon mol.)], stand out as having relatively good, albeit lower, values of two-photon cross sections, as compared to that of previously reported N,N-diphenyl-7-[2-(4-pyridinyl)ethenyl]-9,9-didecyl-2-fluorenamine (AF-50) [$\sigma_2' = 115.6 \times 10^{-48}$ cm⁴ s/(photon mol.)]. However, we observed that AF-240 was more photochem. robust than AF-50 when their THF solns. were subjected to repetitive and prolonged exposure to nanosecond laser radiation. On the basis of nanosecond TPA cross-section data (σ_2' /mol. weight values), the general trend for π -electron accepting ability, i.e., ability to accept charge transferred from diphenylamine, appears to be as follows: 2-(4-pyridinyl)vinyl > 2-benzothiazolyl > benzoyl > N-phenyl-2-benzimidazolyl > 2-quinoxaliny > 2-benzoxazolyl > 4,5-diphenyl-2-imidazolyl.
 IT 222617-85-EP, AF 240
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation of (diphenylamino)fluorene-based two-photon-absorbing chromophores with various π -electron acceptors)
 RN 222617-85-8 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

L3 ANSWER 36 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)



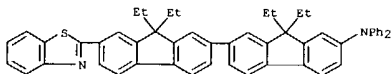
IT 225113-41-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation of (diphenylamino)fluorene-based two-photon-absorbing chromophores with various π -electron acceptors)
 RN 225113-41-7 CAPLUS
 CN Benzo[1,2-b:4,5-b']dithiazole, 2-(7-bromo-9,9-diethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
 FORMAT

L3 ANSWER 37 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN
 ACCESSION NUMBER: 2001:193249 CAPLUS
 DOCUMENT NUMBER: 135:211388
 TITLE: Two-photon absorption induced photopolymerization
 AUTHOR(S): Denny, Lisa R.; Baur, Jeffery W.; Alexander, Max D., Jr.; Kannan, Ramamurthi; Kirkpatrick, Sean M.; Clarson, Stephen J.
 CORPORATE SOURCE: Air Force Research Laboratory (AFRL), AFRL/MLBP, Wright Patterson Air Force Base, OH, 45433-7750, USA
 SOURCE: International SAMPE Technical Conference (2000), 32, 712-716
 CODEN: ISTCEF; ISSN: 0892-2624
 PUBLISHER: Society for the Advancement of Material and Process Engineering
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Organic two-photon chromophores undergo a process called two-photon absorption in which light is absorbed in the IR wavelength range, which in turn can initiate photochem. using either the two-photon excited mol. or its up-converted fluorescence emission. One type of photochem. for which the two-photon up-conversion can be used is photopolymn. Organic/polymeric materials often exhibit non-resonant linear absorption in the UV wavelength range, while in near IR (NIR) wavelengths little or no absorption is observed. As a result NIR light can penetrate much deeper into the organic materials to initiate photocuring throughout the resin. Thus, using this NIR photocure technique, it is possible to photocure objects thicker than those fabricated with traditional UV curing. Novel two-photon organic chromophores developed in the Air Force Research Laboratory (AFRL) and by other research groups exhibit large effective two-photon cross-section values, which provide efficient excited mol. states or localized UV/visible fluorescence required for photocure. The utilization of up-conversion photochem. processing provides a relatively new processing method for fabrication of structures ranging from precisely patterned nanostructures to thick structures (>1cm). This research evaluates the advantages and limitations of this new polymer processing technique and the critical factors influencing the reaction.
 IT 219998-27-3, AF 250
 RL: CAT (Catalyst use); USES (Uses) (chromophore; two-photon absorption induced photopolymn.)
 RN 219998-27-3 CAPLUS
 CN [2,2'-Bi-9H-fluoren]-7-amine, 7'-(2-benzothiazolyl)-9,9,9',9'-tetraethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

L3 ANSWER 37 OF 49 CAPLUS COPYRIGHT 2004 ACS ON STN (Continued)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
 FORMAT

L3 ANSWER 38 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:548729 CAPLUS

DOCUMENT NUMBER: 133:151989

TITLE: Benzothiazole-containing two-photon chromophores

INVENTOR(S): exhibiting strong frequency upconversion

PATENT ASSIGNEE(S): Reinhardt, Bruce A.; Kannan, Rammamurthi

SOURCE: United States Dept. of the Air Force, USA

U.S., 9 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6100405	A	20000808	US 1999-333304	19990615
PRIORITY APPLN. INFO.:			US 1999-127602P	P 19990316

OTHER SOURCE(S): MARPAT 133:151989

AB There are provided asym. two-photon-absorbing chromophores having large two-photon-absorbing cross sections and improved thermal and photochem. stability, of formula DArA wherein Ar is arenediyl, including fluorenediyl; D is diarylamino; and A is selected from the group benzothiazolyl or benzoxazolyl optionally attached through an E-ethenediyl linkage. Thus,

9,9-diethyl-7-(diphenylamino)-2-(2-benzothiazolyl)fluorene was prepared from 7-bromo-9,9-diethyl-2-fluorene-carboxaldehyde by way of successive treatment with 2-aminothiophenol and diphenylamine.

IT 219998-27-3P 222617-85-8P 262607-32-9P

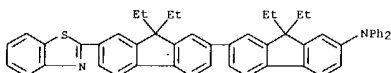
207493-05-4P 207493-07-6P 207493-08-7P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(fluorescent dye; production of two-photon chromophores with improved heat and light stability)

RN 219998-27-3 CAPLUS

CN [2,2'-bi-9H-fluoren]-7-amine, 7'-(2-benzothiazolyl)-9,9,9',9'-tetraethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



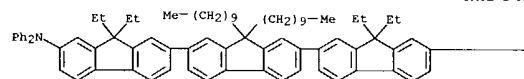
RN 222617-85-8 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

L3 ANSWER 38 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

(Continued)

PAGE 1-A



PAGE 1-B



IT 225113-41-7P 207493-09-8P 207493-17-8P

207493-18-9P

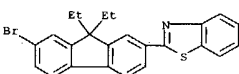
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);

RACT (Reactant or reagent)

(intermediate; production of two-photon chromophores with improved heat and light stability)

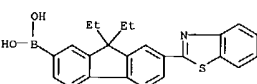
RN 225113-41-7 CAPLUS

CN Benzothiazole, 2-(7-bromo-9,9-diethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



RN 207493-09-8 CAPLUS

CN Boronic acid, [7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

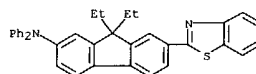


RN 207493-17-8 CAPLUS

CN Benzothiazole, 2-[9,9-diethyl-7-(tributylstannyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

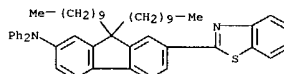
L3 ANSWER 38 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

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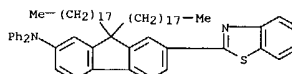
RN 262607-32-9 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



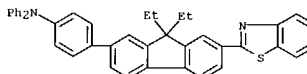
RN 207493-05-4 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 207493-07-6 CAPLUS

CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

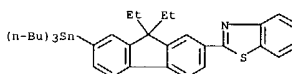


RN 207493-08-7 CAPLUS

CN [2,2':7',2''-ter-9H-fluoren]-7-amine, 7''-(2-benzothiazolyl)-9,9'-diethyl-9,9,9',9''-tetraethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

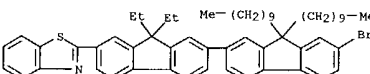
L3 ANSWER 38 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

(Continued)



RN 207493-18-9 CAPLUS

CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

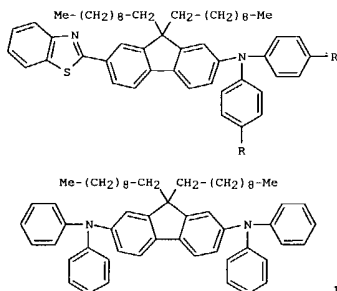


REFERENCE COUNT: 4

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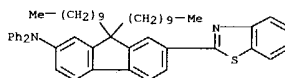
FORMAT

L3 ANSWER 39 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2000:425868 CAPLUS
 DOCUMENT NUMBER: 133:207653
 TITLE: Synthesis of new two-photon absorbing fluorene derivatives via Cu-mediated Ullmann condensations
 AUTHOR(S): Belfield, Kevin D.; Schafer, Katherine J.; Mourad, Wael; Reinhardt, Bruce A.
 CORPORATE SOURCE: Department of Chemistry, University of Central Florida, Orlando, FL, 32816-2366, USA
 SOURCE: Journal of Organic Chemistry (2000), 65(15), 4475-4481
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 133:207653
 GI

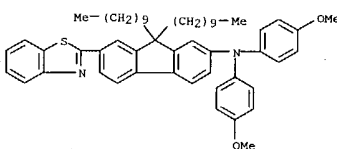


AB The Ullmann amination reaction was utilized to provide access to a number of fluorene analogs from common intermediates, via facile functionalization at positions 2, 7, and 9 of the fluorene ring. Through variation of amine or iodo fluorene derivative, analogs bearing substituents with varying electron-donating and electron-withdrawing ability, e.g., diphenylamino, bis-(4-methoxyphenyl)amine, nitro, and benzothiazole, were synthesized in good yield. The novel fluorene derivs. were fully characterized, including absorption and emission spectra. Didecyl at the 9-position afforded remarkably soluble derivs. Target compds. I (R = H, MeO) and II are

L3 ANSWER 39 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)
 potentially useful as fluorophores in two-photon fluorescence microscopy. Their UV-vis spectra display desirable absorption in the range of interest suitable for two-photon excitation by near-IR femtosecond lasers. Preliminary measurements of two-photon absorption indicate the derivs. exhibit high two-photon absorptivity, affirming their potential as two-photon fluorophores. For example, using a 1210 nm femtosecond pump beam, (diphenylamino)benzothiazolylfluorene I (R = H) exhibited nondegenerate two-photon absorption, with two-photon absorptivity (δ) of ca. 820 + 10-50 cm⁴ s photon⁻¹ mol.⁻¹ at the femtosecond white light continuum probe wavelength of 615 nm.
 IT 262607-32-9P 289892-09-7P
 RL: FRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation of fluorene derivs. as two-photon fluorophores for fluorescence microscopy via copper-mediated Ullmann aminations)
 RN 262607-32-9 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

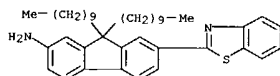


RN 289892-09-7 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)

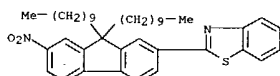


IT 262607-30-7P 262607-33-0P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation of fluorene derivs. as two-photon fluorophores for fluorescence microscopy via copper-mediated Ullmann aminations)
 RN 262607-30-7 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl- (9CI) (CA INDEX NAME)

L3 ANSWER 39 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)



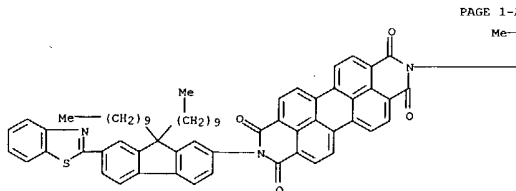
RN 262607-33-0 CAPLUS
 CN Benzothiazole, 2-(9,9-didecyl-7-nitro-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L3 ANSWER 40 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2000:312491 CAPLUS
 DOCUMENT NUMBER: 133:90722
 TITLE: Synthesis and characterization of a perylene-based luminescent organic glass
 AUTHOR(S): Belfield, Kevin D.; Schafer, Katherine J.; Alexander, Max D. Jr.
 CORPORATE SOURCE: Department of Chemistry, University of Central Florida, Orlando, FL, 32816-2366, USA
 SOURCE: chemistry of Materials (2000), 12(5), 1184-1186
 CODEN: CMATEX; ISSN: 0897-4756
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The red dye N,N'-bis[7-(2-benzothiazolyl)-9,9-didecyl-2-fluorenyl]perylene-tetracarboxylic diimide (I) was prepared from perylene-tetracarboxylic dianhydride and 7-(2-benzothiazolyl)-9,9-didecyl-2-fluorenylamine. Photoluminescence studies of I showed that it underwent intramol. energy transfer from the fluorenyl moiety to the perylene ring system upon excitation with long-wavelength UV light. I should provide broad band 2-photon absorption in the ranges of 600-770 and 820-1090 nm. I had no clear melting or crystallization transitions, while showing .apprx.4% weight loss at 380°. Good solubility was noted in common organic solvents.
 IT 280768-22-1P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (preparation and characterization of perylene-based luminescent organic glass)
 RN 280768-22-1 CAPLUS
 CN Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)-tetrone, 2,9-bis[7-(2-benzothiazolyl)-9,9-didecyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



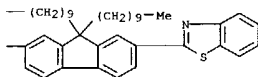
PAGE 1-A

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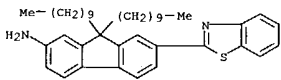
10784312

L3 ANSWER 40 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)

PAGE 1-B



IT 262607-30-7, 7-(2-Benzothiazolyl)-9,9-didecyl-2-fluorenylamine
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (starting material; preparation and characterization of perylene-based
 luminescent organic glass)
 RN 262607-30-7 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl- (9CI) (CA INDEX
 NAME)



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR
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L3 ANSWER 41 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

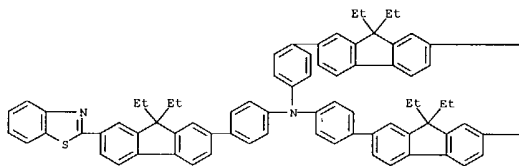
ACCESSION NUMBER: 2000:265904 CAPLUS
 DOCUMENT NUMBER: 132:340824
 TITLE: Two-photon Excitation and Optical Spatial-Profile
 Reshaping via a Nonlinear Absorbing Medium
 AUTHOR(S): He, Guang S.; Swiatkiewicz, Jacek; Jiang, Yan;
 Prasad,
 Kannan,
 Ramamurthi
 CORPORATE SOURCE: Photonics Research Laboratory Department of
 Chemistry,
 State University of New York at Buffalo, Buffalo, NY,
 14260-3000, USA
 SOURCE: Journal of Physical Chemistry A (2000), 104(20),
 4805-4810
 CODEN: JPCAFH; ISSN: 1089-5639
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Two-photon processes have recently received considerable attention, as
 they offer opportunities for both fundamental research and technol.
 applications. The authors illustrate both of these opportunities by
 reporting on a study of 2-photon properties and discussing a specific
 application of a new chromophore, tris[4-(7-benzothiazol-2-yl-9,9-
 diethylfluoren-2-yl)phenyl]amine (AF-350). This new compound exhibits a
 large 2-photon absorptive cross section and, more importantly from the
 application point of view, a high photochem./photothermal stability. The
 nonlinear optical properties of an AF-350 solution were studied with
 .apprx.800-nm laser pulses in both nanosecond and femtosecond regimes.
 The 2-photon excited fluorescence spectrum and temporal behavior were
 compared with the corresponding results obtained for 1-photon excitation.
 There is an .apprx.11-ps delay between an ultrashort pump pulse and the
 1st peak of the 2-photon induced fluorescence signal, whereas no delay
 was
 measured between the pump pulse and the 1st peak of the 1-photon induced
 fluorescence. The measured effective 2-photon absorption (TPA) cross
 section is $\sigma_2 = (151 \pm 23) + 10-20 \text{ cm}^4/\text{GW}$ for 7-ns, 810-nm
 laser pulses and $\sigma_2 = (0.61 \pm 0.02) + 10-20 \text{ cm}^4/\text{GW}$ for
 135-fs, 796-nm laser pulses. One specific application reported here is
 the spatial-profile reshaping and smoothing of a focused laser field.

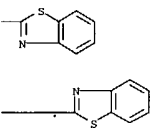
IT 267667-11-8
 RL: PRP (Properties)
 (two-photon excitation and optical spatial-profile reshaping via
 nonlinear absorbing medium)
 RN 267667-11-8 CAPLUS
 CN Benzenamine, 4-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N,N-
 bis[4-(7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl)phenyl]- (9CI)
 (CA INDEX NAME)

L3 ANSWER 41 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)

PAGE 1-A



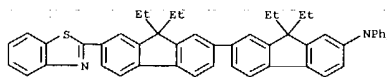
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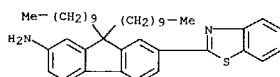
L3 ANSWER 42 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:208008 CAPLUS
 DOCUMENT NUMBER: 132:334971
 TITLE: Two-photon up-converted fluorescence facilitated
 photopolymerization
 AUTHOR(S): Denny, Lisa R.; Baur, Jeffery W.; Alexander, Max D.,
 Jr.; Kirkpatrick, Sean M.; Clarson, Stephen J.
 CORPORATE SOURCE: Air Force Research Laboratory (AFRL), AFRL/MLBP,
 Wright Patterson Air Force Base, OH, 45433-7750, USA
 SOURCE: Polymer Preprints (American Chemical Society,
 Division
 of Polymer Chemistry) (2000), 41(1), 3
 CODEN: ACPPAY; ISSN: 0032-3934
 PUBLISHER: American Chemical Society, Division of Polymer
 Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Several resin blends of 2 different two-photon chromophores were tested;
 these generate visible light at 475 nm, which in turn activates a
 photoinitiator to start the polymerization reaction. Pos. results were
 obtained
 for 0.4% of a heteroarom.-substituted amine chromophore (AF380) in
 NOA-72,
 a com. available UV/VIS cure optical adhesive resin containing
 photoinitiators. Excitation was carried out with an IR laser, and the
 extent of polymerization in the path of the beam was studied.
 IT 219998-27-3, AF 250
 RL: CAT (Catalyst use); USES (Uses)
 (photopolym. facilitated by two-photon fluorescence chromophores as
 photoinitiator activators)
 RN 219998-27-3 CAPLUS
 CN [2,2'-Bi-9H-fluoren]-7-amine, 7'-(2-benzothiazolyl)-9,9,9'-tetraethyl-
 N,N-diphenyl- (9CI) (CA INDEX NAME)



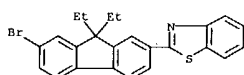
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
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L3 ANSWER 43 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2000:36371 CAPLUS
 DOCUMENT NUMBER: 132:257698
 TITLE: Nonlinear spectrometer for characterization of organic and polymeric molecules
 AUTHOR(S): Negres, Raluca A.; Van Stryland, Eric W.; Hagan, David
 CORPORATE SOURCE: J.; Belfield, Kevin D.; Schafer, Katherine J.; Przhonska, Olga V.; Reinhardt, Bruce A.
 SOURCE: Sch. Optics, CREOL/Univ. of Central Florida, Orlando, FL, USA
 PUBLISHER: Proceedings of SPIE-The International Society for Optical Engineering (1999), 3796(Organic Nonlinear Optical Materials), 88-97
 DOCUMENT TYPE: CODEN: PSISDG; ISSN: 0277-786X
 LANGUAGE: SPIE-The International Society for Optical Engineering
 AB The authors have developed a femtosecond continuum spectrometer to measure nonlinear absorption spectra from 300 nm in the UV to 1.7 μ m in the IR. This method is applied for measuring NLA spectra of semiconductor, organic and polymeric materials. The pump-probe nature of the experiment also allows the temporal response to be determined, thus helping in the determining of the underlying phys. mechanisms for the nonlinearity. The authors describe studies of two-photon absorption in alkyl fluorenes and excited state absorption dynamics in polymethines using this spectrometer.
 IT 262607-30-7P 262607-32-9P 262607-33-0P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (nonlinear spectrometer for characterization of organic and polymeric mols.)
 RN 262607-30-7 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl- (9CI) (CA INDEX NAME)

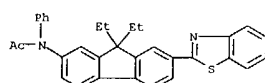


RN 262607-32-9 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-didecyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

L3 ANSWER 44 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 1999:211109 CAPLUS
 DOCUMENT NUMBER: 130:352688
 TITLE: Synthesis and characterization of new two-photon absorbing polymers
 AUTHOR(S): Belfield, Kevin D.; Reinhardt, Bruce A.; Brott, Lawrence L.; Clarson, Stephen J.; Najjar, Ousama; Plus, Silvester M.; Van Stryland, Eric W.; Negres, Raluca
 CORPORATE SOURCE: Department of Chemistry, Department of Mechanical, Materials & Aerospace Engineering & School of Optics, University of Central Florida, Orlando, FL, 32816, USA
 SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1999), 40(1), 127-128
 PUBLISHER: CODEN: ACPRAY; ISSN: 0032-3934
 DOCUMENT TYPE: American Chemical Society, Division of Polymer Chemistry
 LANGUAGE: Journal
 AB 2-Benzothiazoyl-7-(N-vinylbiphenyl-N-phenylamino) derivative monomer was prepared from 2,7-dibromo-9,9-diethylfluorene and copolyd. with styrene to give a copolymer. Fluorenyl-containing polysiloxanes with low glass temperature were prepared by hydrosilylation of the fluorenyl vinylbiphenyl monomer with polysiloxanes.
 IT 225113-41-7P 225113-43-9P 225113-45-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (intermediates; in preparation of fluorenyl vinylbiphenyl monomers)
 RN 225113-41-7 CAPLUS
 CN Benzothiazole, 2-(7-bromo-9,9-diethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

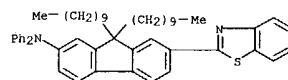


RN 225113-43-9 CAPLUS
 CN Acetamide, N-[7-(2-benzothiazolyl)-9,9-diethyl-9H-fluoren-2-yl]-N-phenyl- (9CI) (CA INDEX NAME)

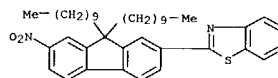


RN 225113-45-1 CAPLUS

L3 ANSWER 43 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)

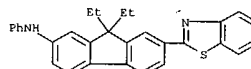


RN 262607-33-0 CAPLUS
 CN Benzothiazole, 2-(9,9-didecyl-7-nitro-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

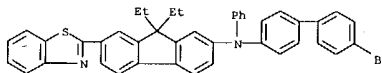


REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

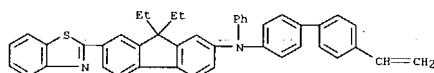
L3 ANSWER 44 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 225113-47-3 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N-(4'-bromo[1,1'-biphenyl]-4-yl)-9,9-diethyl-N-phenyl- (9CI) (CA INDEX NAME)



IT 225113-48-4DP, reaction products with polysiloxanes
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (preparation and characterization of)
 RN 225113-48-4 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N-(4'-ethenyl[1,1'-biphenyl]-4-yl)-9,9-diethyl-N-phenyl- (9CI) (CA INDEX NAME)

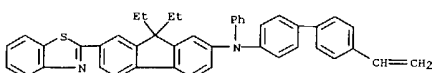


IT 225113-52-0P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation and characterization of)
 RN 225113-52-0 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N-(4'-ethenyl[1,1'-biphenyl]-4-yl)-9,9-diethyl-N-phenyl-, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 225113-48-4
 CMF C44 H36 N2 S



09/11/2004

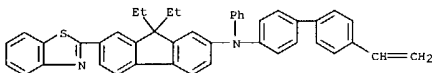
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L3 ANSWER 44 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)

CM 2

CRN 100-42-5
CMF CB H8 $H_2C=CH-Ph$

IT 225113-48-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant of reagent)
 (preparation and polymerization with styrene)
 RN 225113-48-4 CAPLUS
 CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-N-(4'-ethenyl[1,1'-biphenyl]-4-yl)-9,9-diethyl-N-phenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
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L3 ANSWER 46 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1998:781324 CAPLUS
 DOCUMENT NUMBER: 130:145737
 TITLE: Probing two-photon excitation dynamics using ultrafast

AUTHOR(S): Swiatkiewicz, J.; Prasad, P. N.; Reinhardt, B. A.
 CORPORATE SOURCE: Photonics Research Laboratory, Departments of Chemistry and Physics, State University of New York, Buffalo, NY, 14260-3000, USA

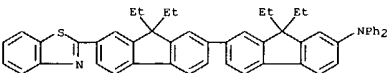
SOURCE: Optics Communications (1998), 157(1-6), 135-138
 CODEN: OPCOB8; ISSN: 0030-4018
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The authors probe the two-photon excitation dynamics of two new dyes, N,N-diphenyl-7-(2-(4-pyridinyl)ethenyl)-9,9-di-n-decyl-fluoren-2-amine (AF50) and (7-(7-benzothiazol-2-yl)-9,9-diethylfluoren-2-yl)-9,9-diethylfluoren-2-yl)diphenylamine (AF250) using femtosecond excitation pulses by Z-scan and time-resolved pump-probe absorption measurements. Irradiance dependence of the induced absorption cross-section is linked

to linear absorption of the two-photon excited state. The excited state linear absorption cross-section are 1.0×10^{-17} cm² for AF250 and 2.7×10^{-17} cm² for AF50. Relaxation of the two-photon excited state follows a complicated path with three distinct relaxation times. The longest ones, 1.6 ns for the AF50 and 1.9 ns for the AF250, are associated with the resp. lowest singlet life-times: 2.23 ns and 2.15 ns.

IT 219998-27-3
 RL: PRP (Properties)
 (probing two-photon excitation dynamics using ultrafast laser pulses)

RN 219998-27-3 CAPLUS
 CN [2,2'-Bi-9H-fluoren]-7-amine, 7'-(2-benzothiazolyl)-9,9,9',9'-tetraethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
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L3 ANSWER 45 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1999:133764 CAPLUS
 DOCUMENT NUMBER: 130:289152
 TITLE: High-density three-dimensional optical data storage in

a stacked compact disk format with two-photon writing and single photon readout
 AUTHOR(S): Pudavar, Haridas E.; Joshi, Mukesh P.; Prasad, Paras N.; Reinhardt, Bruce A.
 CORPORATE SOURCE: Photonics Research Laboratory, Department of Chemistry

and Physics, State University of New York at Buffalo, NY, 14260, USA

SOURCE: Applied Physics Letters (1999), 74(9), 1338-1340
 CODEN: APPLAB; ISSN: 0003-6951

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal
 LANGUAGE: English

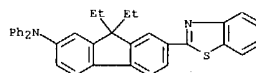
AB Using a polymer block doped with a highly efficient two-photon dye, the authors achieved a high d. data storage with gray-scale control in multiple planes as stacked compact disks at a separation of 10 μm. The absorption and fluorescence of the dye at the written spot shift to a longer wavelength, permitting an easy fluorescence mode readout with a linear excitation using an inexpensive laser source. The storage capacity in this case is estimated to be 1012 bits/cm³.

IT 222617-85-8, AF 240
 RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(AF 240; high-d. three-dimensional optical data storage in stacked compact disk format with two-photon writing and single photon readout)

RN 222617-85-8 CAPLUS

CN 9H-Fluoren-2-amine, 7-(2-benzothiazolyl)-9,9-diethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
 FORMAT

L3 ANSWER 47 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1993:549604 CAPLUS
 DOCUMENT NUMBER: 119:149604
 TITLE: Preparation of pyrimidinylbenzothiazole derivatives as

liquid crystals and liquid crystal compositions containing them for liquid crystal devices and

display apparatus
 INVENTOR(S): Nakamura, Shinichi; Takiguchi, Takao; Iwaki, Takashi; Tokano, Goji; Yamada, Yoko

PATENT ASSIGNEE(S): Canon KK, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 69 pp.

CODEN: JKXKXAF

DOCUMENT TYPE: Patent

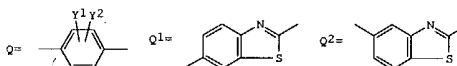
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05125076	A2	19930521	JP 1991-289934	19911106
PRIORITY APPLN. INFO.:			JP 1991-289934	19911106

GI



AB R1A1B1A2R2 [I; R1, R2 = C1-18 linear or branched alkyl, wherein 1 or 2 non-adjacent CH₂ groups may be replaced by 2 (wherein 2 = O, S), ZC(O), C(O)Z, CO, OCO₂, CONR₃ (wherein R₃ = H, C1-5 alkyl), NR₃CO, CH:CH, or C.tplbond.C; A1 = 2,5- or 5,2-pyrimidinediyl; A2 = single bond, Q (wherein Y1, Y2 = H, halo, cyano, CF₃), 1,4-cyclohexylene, 2,5- or 5,2-pyrimidinediyl, -pyridinediyl, or -thiazolediyl, 2,5-thiophenediyl, 1,3,4-thiadiazole-2,5-diyl, 2,6-naphthylene, 2,7-fluorenylene, 9,10-dihydro-2,7-phenanthrenylene; B1 = Q1, Q2] are prepared A liquid

crystal composition, preferably a chiral smectic liquid crystal composition, contains I. I provide ferroelec. chiral smectic liquid crystal compns. with good switching property, improved low temperature driving property, and reduced temperature dependence of response speed.

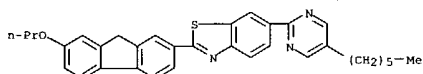
IT 149776-65-8
 RL: USES (Uses)
 (ferroelec. chiral smectic liquid crystal compns. containing, for display devices)

RN 149776-65-8 CAPLUS
 CN Benzothiazole, 6-(5-hexyl-2-pyrimidinyl)-2-(7-propoxy-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

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L3 ANSWER 47 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)



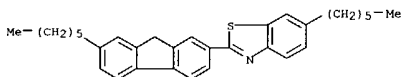
L3 ANSWER 48 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1992:162651 CAPLUS
 DOCUMENT NUMBER: 116:162651
 TITLE: Mesomorphic compounds for liquid crystal compositions for display devices
 INVENTOR(S): Iwaki, Takashi; Takiguchi; Togano, Takeshi; Yamada, Yoko; Nakamura, Shinichi
 PATENT ASSIGNEE(S): Canon K. K., Japan
 SOURCE: Eur. Pat. Appl., 212 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 440061	A1	19910807	EP 1991-100694	19910121
EP 440061	B1	19980401		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
JP 03227980	A2	19911008	JP 1990-19725	19900130
JP 2974352	B2	19991110		
JP 04029984	A2	19920131	JP 1990-332694	19901129
JP 3029124	B2	20000404		
CA 2034309	AA	19910723	CA 1991-2034309	19910116
CA 2034309	C	19970401		
EP 667385	A1	19950816	EP 1995-101836	19910121
EP 667385	B1	19990804		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
AT 164577	E	19980415	AT 1991-100694	19910121
AT 192920	E	19990815	AT 1995-101836	19910121
US 5236619	A	19930817	US 1991-643377	19910122
US 5284599	A	19940208	US 1992-915888	19920720
PRIORITY APPLIN. INFO.:			JP 1990-12065	A 19900122
			JP 1990-19725	A 19900130
			JP 1990-332694	A 19901129
			EP 1991-100694	A3 19910121
			US 1991-643377	A3 19910122

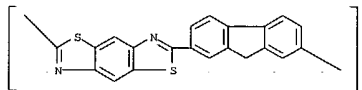
OTHER SOURCE(S): MARPAT 116:162651
 AB The mesomorphic compds. have the general formula R1A1B1A2R2, where R1, R2 = C3-18 alkyl in which 1 or 2 nonadjacent CH2 groups may be replaced by Z, ZCO, CO2, CO, OCOO, CON(R3), N(R3)CO, CH:CH, or C:tpbond; Z = O or S; R3 = H or C1-5 alkyl; B1 = benzothiazol-5,2-diyl or -6,2-diyl; A1 = single bond, 1,4-phenylene (possibly mono- or disubstituted with F, Cl, Br, Me, CN, and/or CF3), or 1,4-cyclohexylene; A2 = single bond, A3, or A3A4; and A3, A4 = A1, 2,6-naphthylene, 5,2- or 2,5-pyridinyne, 5,2- or 2,5-pyrimidinylene, thiophen-2,5-ylene, fluorene-2,7-diyl, or 9,10-dihydrophenanthren-2,7-diyl.
 IT 139716-35-1P
 RL: PREP (Preparation)
 (preparation of, for liquid crystal compns. for display devices)

L3 ANSWER 48 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN (Continued)
 RN 139716-35-1 CAPLUS
 CN Benzothiazole, 6-hexyl-2-(7-hexyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



L3 ANSWER 49 OF 49 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1989:534846 CAPLUS
 DOCUMENT NUMBER: 111:134846
 TITLE: Rigid-rod benzobisthiazole polymers with reactive fluorene moieties: I. Synthesis and preliminary characterization
 AUTHOR(S): Dotrong, My; Evers, Robert C.
 CORPORATE SOURCE: Res. Inst., Univ. Dayton, Dayton, OH, 45469, USA
 SOURCE: Polymeric Materials Science and Engineering (1989), 60, 507-11
 CODEN: PMSEDO; ISSN: 0743-0515
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Benzobisthiazole polymers capable of thermal crosslinking were prepared by polymerization of 2,7-dicyanofluorene or 2,7-fluorenedicarboxylic acid with 2,5-diaminobenzene dithiol dihydrochloride and terephthalic acid or terephthalic acid chloride. The polymers were soluble only in methanesulfonic acid or polyphosphoric acid, and had thermooxidative stabilities higher than those of conventional benzobisthiazole polymers. Gelling of the polymers occurred at temps. >165°.
 IT 122727-25-7P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation and characterization of)
 RN 122727-25-7 CAPLUS
 CN Poly(benzo[1,2-d:4,5-d']bisthiazole-2,6-diyl-9H-fluorene-2,7-diyl) (9CI) (CA INDEX NAME)



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LOGOFF? (Y)/N/HOLD:y

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

235.00

390.69

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

CA SUBSCRIBER PRICE

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